



Strengthening, empowering and sustaining small-scale aquaculture farmers' associations



Cover photographs:

Top left: Focus group discussion of the fisherwomen involved in shrimp PL (post-larvae) collection, Munshigonj, Satkhira, Bangladesh (©FAO/Mostafa A.R. Hossain). *Top right:* Group discussion of fish farmers and fish seed traders in Chatmohar, Pabna, Bangladesh (©FAO/Mostafa A.R. Hossain). *Bottom right:* Meeting of various stakeholders (e.g., ornamental fish breeders/out-growers, ornamental plant producers and various officials from the government and private sectors), NAQDA Auditorium, Pelawatte, Sri Lanka (©FAO/D.E.M Weerakoon). *Bottom right:* Discussion meeting of the fish farmers of Fisheries Association of Van Ninh District, Khanh Hoa Province, Viet Nam (©FAO/Thai Ngoc Chien).

Cover design:

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Strengthening, empowering and sustaining small-scale aquaculture farmers' associations 655

FAO
FISHERIES AND
AQUACULTURE
TECHNICAL
PAPER

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Hasan, M.R., Bueno, P.B. and Corner, R.A. eds. 2020. *Strengthening, empowering and sustaining small-scale aquaculture farmers' associations*. FAO Fisheries and Aquaculture Technical Paper No. 655. Rome, FAO. 190 pp. <https://doi.org/10.4060/c7741en>.

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ISSN 2070-7010 [Print]
ISSN 2664-5408 [Online]

ISBN 978-92-5-132211-6

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Preparation of this document

This technical paper comprises three major sets of information resource: (i) five case studies from five Asian countries, (ii) the synthesis of the case studies and (iii) the report of the regional workshop that reviewed the case studies and the draft synthesis of the case study reports, provided additional science-based, professional, and experiential information, and developed recommendations to strengthen, empower and sustain organizations of small-scale fish farmers and related aquaculture-based enterprises.

This publication was prepared under the coordination of Dr Mohammad R. Hasan of the Aquaculture Branch, FAO Fisheries and Aquaculture Department as a part of FAO's Strategic Objective (SO3): Reduce rural poverty. This publication will contribute to the organizational outcome 30101: the enabling environment is improved for the rural poor towards enhanced and equitable access to productive resources, services, organizations and markets, and to ensure they are effective. The objective of this technical paper is to identify the factors that contribute to the strengthening, empowerment and sustainability of aquaculture-sector associations for small-scale farmers and operators in Bangladesh, Kyrgyz Republic, the Philippines, Sri Lanka and Viet Nam, where being associated can help overcome issues that individual farmers and hatchery operators find impossible, extremely difficult or very expensive to overcome alone.

FAO requested investigations of small-scale aquaculture production and hatchery associations from in-country consultants, who conducted literature review, key informant interviews supported by a standardized questionnaire and SWOT analysis, before presenting results to local workshops for discussion with stakeholders and to validate findings. The country case study reports of the consultants are found in Section B, except for Kyrgyz Republic. The Kyrgyz National Trout Association and FAO Government Cooperative Programme (GCP) Project "Support to fishery and aquaculture management in the Kyrgyz Republic (GCP/KYR/003/FIN)" provided information for the synthesis but was not requested to produce a specific country report. The five case studies and a draft synthesis of the studies were presented at the Regional Workshop on "Strengthening, empowering and sustaining small-scale aquaculture farmers' association in Asia", organized by the Bangladesh Shrimp and Fish Foundation (BSFF) and FAO Bangladesh in Dhaka, Bangladesh on 21 May 2017. Its revision benefited from the workshop discussions. The organization of the regional workshop and preparation of the synthesis of the case studies were carried out by Bangladesh Shrimp and Fish Foundation through a letter of agreement between FAO and BSFF. Syed Mahmudul Huq, Chairman of the Bangladesh Shrimp and Fish Foundation and his team at the Foundation organized and facilitated the regional workshop and the related activities.

Case study reports identify key informants consulted for this study, and the authors would like to thank them for their critical support to this project. There were also many association members, Government personnel and other stakeholders, fish farmers and hatchery operators from all countries to whom the authors are grateful for providing their useful insight.

For consistency and conformity, the use of scientific and English common names of fish species in this technical paper were used according to FishBase (www.fishbase.org/search.php). Ms Marianne Guyonnet and Ms Lisa Falcone are acknowledged for their assistance in quality control and FAO house style. Mr José Luis Castilla Civit prepared the layout design for printing. The publishing and distribution of the document were undertaken by FAO, Rome.

Abstract

The project sought to identify the factors that contribute to the strengthening, empowerment and sustainability of aquaculture-related associations for small-scale farmers and operators. To pursue this objective, a methodology was designed to obtain and generate three sets of major information resources: conduct of case studies in five Asian countries, drafting of the synthesis of the case study reports for a regional workshop, and carrying out the regional workshop that reviewed the case study reports and their synthesis, and develop the recommendations. These three information resources are integrated into this paper.

The synthesis (Section A) is a summary of case studies assessing different types of farmers' associations in Bangladesh (mainly hatchery operators), Kyrgyz Republic (trout farmers), the Philippines (women milkfish farmers), Sri Lanka (ornamental fish farmers) and Viet Nam (a provincial fisheries association with fish farmers among its members). Section B contains the case study reports, carried out by one commissioned expert from each country except Kyrgyz Republic. For Kyrgyz Republic, no case study was commissioned but a summary information was contributed by the National Trout Farmers Association and the FAO Government Cooperative Project (GCP) "Towards Sustainable Aquaculture and Fisheries Development in the Kyrgyz Republic (GCP/KYR/012/FIN)". The methodology, consistently applied across the case studies, comprised three major activities, namely, a key informant survey using a supporting questionnaire, SWOT analysis which analyzed the critical strengths, weaknesses, opportunities and threats to the association's success, country-based and a regional stakeholder workshop to discuss and validate the findings, and develop policy-oriented recommendations for consideration by governments and action-oriented recommendations for consideration by associations within the region. The synthesis highlights the SWOT analyses and the factors associated with the status of the three attributes to success of associations, namely, strength, empowerment and sustainability are summarized, which are assessed in more detail in Section B. An outstanding lesson from the case studies is that strength and empowerment are derived not so much from an association's size, in terms of membership or its financial resources, although these remain important, as from the ability to implement actions to support farmers and hatchery operators, the mission and values of the association and adherence to them by its leaders and members, and a social license that allows strong interaction with government and other stakeholders to make a difference. A generous support or subsidy from Government can be both a boon and a pitfall, the latter if the association becomes too dependent on public financial gratuity. Another is the well-meant influence from government, particularly where guidance to the association extends to selection of its leaders, which could result in extremely negative consequences for the association. What is clear is that the livelihoods of small-scale farmers and hatchery operators can be improved by being associated. This is especially so when the association is strong in its democratically operated procedures and financial transparency, empowered through its ability to make a difference to livelihoods through stakeholder engagement, leading to long-term sustainability. The cases suggest that professionalization of the association – its leadership and procedures – can help it avoid the pitfalls. Recommendations are given on the opportunities for capacity building of farmers' associations and on policies for strengthening, empowering and sustaining the associations. Section C contains the report of the regional workshop. It highlights the views, opinions and information that the participants, who represent the entire range of stakeholders: input suppliers, service providers, farmers and processors, traders, farmer advisers, regulators, environmentalists, resource managers, sector governors, educators, extension and training officers, value chain analysts, development experts, policy makers, and consumers of aquatic products – brought into the discussions to review the cases and the synthesis of the case study reports and the development of the recommendations.

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Abbreviations and acronyms

| | |
|-------------|---|
| AGM | annual general meeting |
| BAP | best aquaculture practices |
| BAU | Bangladesh Agricultural University |
| BFAD | Bureau of Food and Drug (the Philippines) |
| BFAR-NIFTDC | Bureau of Fisheries and Aquatic Resources-National Integrated Fisheries Technology Development Center (the Philippines) |
| BFAR-RFO1 | Bureau of Fisheries and Aquatic Resources-Regional Fisheries Office 1 (the Philippines) |
| BFHCA | Bangladesh Fish Hatchery and Culture Association |
| BFRF | Bangladesh Fisheries Research Forum |
| BFRI | Bangladesh Fisheries Research Institute |
| BoC | Bank of Ceylon |
| BRC | British Retail Consortium |
| BRIC | Binmaley Rural Improvement Club |
| BSFA | Bangladesh Shrimp Farmers Association |
| BSFF | Bangladesh Shrimp and Fish Foundation |
| CBD | convention on biological diversity |
| CBF | culture-based fisheries |
| CBOs | community-based organizations |
| D-FISH | Directorate of Fisheries (Viet Nam) |
| Danida | Danish International Development Agency |
| DARD | Department of Agriculture and Rural Development (Viet Nam) |
| DFARD | Department of Fisheries & Aquatic Resources Development (Sri Lanka) |
| DfID | Department for International Development (United Kingdom) |
| DG | director general |
| DoF | Department of Fisheries (Bangladesh, Sri Lanka) |
| DOLE | Department of Labor and Employment (the Philippines) |
| DOST | Department of Science and Technology (the Philippines) |
| DPLF | Department of Pastures, Livestock and Fisheries (Kyrgyz Republic) |
| DTI | Department of Trade and Industry (the Philippines) |
| EC | executive committee |
| EF | equity fund |
| e.g. | exempli gratia (for example) |
| EPV | export promotion village |
| etc. | et cetera |
| EU | European Union |
| FA | farmer's association (Bangladesh) |
| FA | field assistant (Sri Lanka) |
| FA | fisheries association |
| FAO | Food and Agriculture Organization of the United Nations |
| FAOBD | Food and Agriculture Organization Bangladesh |
| FBCCI | Federation of Bangladesh Chamber of Commerce and Industry |
| FGD | focus group discussion |
| FDA | Food and Drug Administration (United States of America) |
| FHOA | Fish Hatchery Operators Association (Bangladesh) |
| FLDO | Fisheries & Livestock Development Officer (Sri Lanka) |

| | |
|---------|--|
| FOAB | Fish Farm Owners Association of Bangladesh |
| FoF-BAU | Faculty of Fisheries of Bangladesh Agricultural University |
| FS | fisheries society |
| FTA | free trade agreement |
| GAD | gender and development program |
| GAP | good aquaculture practice |
| GCP | FAO government cooperative project |
| GDP | gross domestic product |
| GHAB | Golda Hatchery Association of Bangladesh |
| GMP | good manufacturing practices |
| GMSS | Gopalpur Motso Somobay Somiti (Fisheries Association, Bangladesh) |
| GNI | gross national income |
| GoB | Government of Bangladesh |
| GOs | government organizations |
| GS | general secretary |
| GVA | gross value added |
| ha | hectare |
| HACCP | hazard analysis and critical control points |
| HNB | Hatton National Bank |
| ICT | information communication technology |
| INGOs | international non-government organizations |
| IO | Institute of Oceanography (Viet Nam) |
| IT | information technology |
| IUCN | International Union for Conservation of Nature |
| JDFHOA | Jessore District Fish Hatchery Owners Association |
| JICA | Japan International Cooperation Agency |
| JSTU | Jessore Science and Technology University (Bangladesh) |
| JTF | Japanese Trust Fund |
| kg | kilogram |
| KHAFA | Khanh Hoa Fisheries Association |
| LGU | local government unit (the Philippines) |
| LKR | Lanka Rupees |
| MAFIM | Ministry of Agriculture, Food Industries and Melioration (Kyrgyz Republic) |
| MARD | Ministry of Agriculture and Rural Development (Viet Nam) |
| MASL | Mahaweli Authority of Sri Lanka |
| MFARD | Ministry of Fisheries & Aquatic Resources Development (Sri Lanka) |
| MoFL | Ministry of Fisheries and Livestock (Bangladesh) |
| MP | member of parliament |
| MPEMR | Ministry of Power, Energy and Mineral Resources (Bangladesh) |
| MRDS | Mahaweli River Diversion Scheme |
| MSME | micro, small and medium enterprise |
| NAMR | NAQDA Aquaculture Management Regulations |
| NAQDA | National Aquaculture Development Authority of Sri Lanka |
| NARA | National Aquatic Resources Research & Development Agency (Sri Lanka) |
| NBR | National Board of Revenue (Bangladesh) |
| NFF | National Fisheries Federation (Sri Lanka) |
| NGOs | non-government organizations |
| NTU | Nha Trang University |
| OFBPTC | Ornamental Fish Breeding & Aquatic Plants Propagation & Training Center (Sri Lanka) |

| | |
|----------------|---|
| OFEA | Ornamental Fish Exporters' Association (Sri Lanka) |
| OFFA | Ornamental Fish Farmers' Association (Sri Lanka) |
| PB | People's Bank (Sri Lanka) |
| PKSF | Palli Karma-Sahayak Foundation (Bangladesh) |
| PRIC | Pangasinan Rural Improvement Club |
| PSA | Philippine Statistics Authority |
| PSU | Pangasinan State University |
| RAEO | regional aquaculture extension officer |
| RDA | Rural Development Academy (Bangladesh) |
| RIA1 | Research Institute for Aquaculture No. 1 (Viet Nam) |
| RIC | Rural Improvement Club (the Philippines) |
| RJSC | registrar, joint stock companies and firms |
| SB | special branch |
| SEAFDEC/AQD | South East Asia Fisheries Development Centre Aquaculture Department (the Philippines) |
| SES | strengthening, empowering and sustaining |
| SFTA | Shrimp Fry Traders Association (Bangladesh) |
| SHAB | Shrimp Hatchery Association of Bangladesh |
| SLEDB | Sri Lanka Export Development Board |
| SMEs | Small & Medium Scale Enterprises |
| SOFB/FA | Small-scale Ornamental Fish Breeder/Farmers' Association (Sri Lanka) |
| SSA | selected statistics on agriculture |
| SSF | shared service facilities |
| SWOT | strengths, weaknesses opportunities and threats |
| TESDA | Technology Education and Skills Development Authority (the Philippines) |
| TOO | trade organization ordinance |
| United Kingdom | United Kingdom of Great Britain and Northern Ireland |
| USD | United States dollar |
| VASEP | Viet Nam Association of Seafood Exporters and Producers |
| VAT | value added tax |
| VPA | Vietnam Pangasius Association |

SECTION A

SYNTHESIS OF FIVE COUNTRY CASE STUDIES

Strengthening, empowering and sustaining small-scale aquaculture farmers' associations: synthesis of five country case studies

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Hasan, M.R. & Bueno, P. B. 2020. Strengthening, empowering and sustaining small-scale aquaculture farmers' associations: synthesis of five country case studies. In M.R. Hasan, P.B. Bueno & R.A. Corner, eds. *Strengthening, empowering and sustaining of small-scale aquaculture farmers' associations*, pp. 3-50. FAO Fisheries and Aquaculture Technical Paper No. 655. Rome, FAO. 190 pp.

EXECUTIVE SUMMARY

Small-scale operations predominate Asian aquaculture. Their size and low level of resources tend to limit their opportunities in so many ways, which can be overcome by being associated. The benefits to small- as well as large-scale farmers of being associated are numerous, which can be summed up in terms of having the economy of scale that enables them to economically and easily access and effectively manage production and marketing assets. This is the basic rationale of this project, from which its four objectives spring: (i) Assess strengths, weaknesses, opportunities and threats to associations, (ii) Identify, describe and explain key factors that constrain the strengthening, empowerment and sustainability of farmers' associations, (iii) Identify opportunities for capacity building of farmers' associations, and (iv) Recommend policy options for empowering and sustaining farmers' associations.

The project supports FAO's strategic objective of reducing rural poverty and is relevant to the objective's Outcome 1 "*The enabling environment is improved for the rural poor towards enhanced and equitable access to productive resources, services, organizations and markets, and to ensure they are effective*" and Output 1.1, "*Governments and relevant stakeholders are supported to strengthen formal and informal rural institutions, organizations and services and facilitate peoples' empowerment to actively participate in decision making processes and contribute to the improvement of rural livelihoods and the reduction of poverty.*"

This synthesis focuses on three desired attributes of a farmers' association: being strong, empowered and sustainable. Briefly, the conceptual definitions of these attributes are: a **strong** organization has the capacity to efficiently and effectively achieve its organizational goal and objectives; an organization is **empowered** if it can interact, negotiate, collaborate, and work with other stakeholders on equal terms for advancing common aspirations (e.g. policy goals) and achieving common objectives

(e.g. development objectives), and in so doing does not compromise its organizational values; and an organization is **sustainable** if it can function at an effective level and maintain organizational viability, it has sufficient resources to operate continuously and need not rely on subsidy to maintain organizational functions.

Each, mostly qualitative, attribute has several indicators (Annex 1), which have guided the collection and analysis of information on five country-based case studies which evaluates the attributes of various types of fish farmer association. This synthesis summarizes key outcomes from the study, with complete analysis reported in Section B of this document. Information and opinions were gathered through key informant surveys, where key informant included officers and members of the associations, officers of other or non-case associations, fishery agency officials, aquaculture extension officers, heads of credit institutions, fish traders, input suppliers, staff of aquaculture research and development institutions, mass media workers, members of NGOs, and consumers.

The five selected countries were in Central, South and Southeast Asia, represented through ten associations and composites of several associations of small-scale aquaculture farmers, including hatchery operators. The countries and associations concerned were:

1. Bangladesh: a district-level hatchery owners' association with additional information on one cooperative fisheries society and one newly organized national association;
2. Kyrgyz Republic: a national trout farmers association with additional information on nine small-scale local level fish farmers associations;
3. Sri Lanka: a district association is featured while a composite of 23 ornamental fish farmers associations from seven districts and a special development zone are analyzed;
4. The Philippines: a community-based women's rural improvement club engaged in farming, processing, marketing and, most recently, exporting of milkfish (*Chanos chanos*); and
5. Viet Nam: one provincial fisheries association and three district associations in the same province, whose members include fishers, fish farmers, hatchery operators and representatives of seafood processing plants.

The cases studies are briefly elaborated below. Part II in the synthesis provides a more detailed description of each case, and the socio-economic and the policy and institutional contexts in which the associations are operating. Case study reports are available in Section B.

Bangladesh: The *Jessore Zila Matsbha Hathery Malik Samity* or the Jessore District Fish Hatchery Owners Association is the oldest running association in the country. It has a constitution, a management board and a set of officers. It charges a membership fee. The second organization is the *Gopalpur Motso Somobay Somiti* or the Gopalpur Fishers Cooperative Society in Tarakanda, Mymensingh. It is relatively small, not officially registered but nonetheless recognized as a successful organization. The third is the newly initiated Bangladesh Fish Hatchery and Culture Association. It was conceived in 2014 to represent the fish farmers and hatchery owners across the country and organized in 2015 by fish farmers and hatchery owners, mostly from the three important fishery districts of Mymensingh, Bogra and Jessore. It was (as of 21 May 2017) being registered with the relevant government department.

Kyrgyz Republic: The establishment of the National Trout Farmers Association was initiated by a prominent trout farmer in the country as a vehicle to raise issues related to trout aquaculture; and has 34 members from the Chui, Issyk-Kul and Jalalabad regions. A primary function of the association is to lobby the Ministry of Agriculture,

Food Industries and Melioration, for policies, regulations and programmes to provide a better enabling environment for sector development.

Sri Lanka: The featured case is the Puttalam Ornamental Fish and Aquatic Plants Rural Fisheries Association. It has 39 members. It was established in 2009 as a cooperative society with 140 members. The society was dissolved and then re-established with fewer members as an association when the National Aquaculture Development Authority (NAQDA) mandated that all fish farmer associations needed to register as associations under its Aquaculture Management Regulations. It has a constitution and a democratically elected board. It has a revolving fund, derived mainly from membership fees but also conducts revenue-raising activities. Along with activities that promote the members' interests and the development of the ornamental fish sector, it has a social responsibility programme. There is close cooperation among members within the association and between associations. Its members are mostly university graduates who are engaged full time in ornamental fish farming.

The Philippines: The Binmaley Rural Improvement Club is a community-based women's group operating under the national Rural Improvement Club. It was established in 1989 it started with 15 women members with duly elected officers and an organizational structure it began with backyard-scale nursing of fry to fingerlings and grow-out production of milkfish. The fresh harvest was sold to the neighborhood. With training, they started a home-based processing venture and, having been selected as a beneficiary of a government programme to develop small and medium scale rural industries, are now operating a 10-ton capacity processing plant and have expanded their product line. They have also expanded their market from the locality, through the province to various provinces in the Philippines and lately begun to explore export markets for niche products. It currently has 85 active members (out of a total membership of 120), two of whom are men. It has received several awards from government in recognition of its "successful efforts at promoting rural livelihood and sustainable development".

Viet Nam: The featured case is the Khanh Hoa Fisheries Association, established in 2001 by Khanh Hoa's Provincial Peoples Committee. In 2016 it had 1,195 members. Of these 178 were fish farmers, 453 were hatchery operators, 527 were capture fishers, and 13 were representatives of seafood processing plants. It has 26 executive members on a board. It charges a membership fee and receives some funding from provincial government. As with other associations in Viet Nam, KHAFSA was formed by a group of volunteers, but is supported and guided by Government, and managed by the Provincial Department of Agriculture & Rural Development (DARD). Among its functions the association acts to protect the legal rights of its members.

STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

The **strengths** of an association are derived from strong internal mechanisms, including having a legal license to operate (i.e. registered and with a constitution and by-laws), democracy in election of officers, financial and decision-making transparency open and equal participation of members in decision-making, and development of actions plans that are achievable. Further strength is gained from government support to the sector, especially to the formation, development and implementation of incentives to associations; and government's recognition of their role as a partner in policy making. Collectivity in associations also draw strength from members ability to achieve more favorable commercial terms with input suppliers and in the marketing of products from the commodity around which the association is organized (i.e. ornamental fish, trout, fish seed, milkfish, high value marine species, etc.). The favorable business

environment created by government policy, influenced through “lobbying” activity by associations, enhances the viability of individual members’ enterprises. In turn, economic viability of members has a strong influence on cohesiveness, participation in an association’s advocacy activities and, obviously, their ability to pay the membership fee and other obligations and to support the association’s organizational development efforts. Representation in the activities of national agencies endows strength. Linkages with international and national technical assistance, science and technology and development agencies adds to this. Two critical factors in successful and strong associations are adherence to democratic principles and transparency; especially in the election of leaders, decision making, and management of the association’s funds, and in members knowing all their interests are managed fairly.

Common reasons for **weakness** can be derived from internal factors, inherent within the association; and external pressures and adverse influences on the association and the industry more generally. The potential for **internal weaknesses** are many and can include overly complex functions and too many and diffused objectives; low technical base among members; lack of a development strategy; members not being consulted or hardly involved in decision-making processes; inadequate funds and high operational costs but also a high membership fee; poor management; weak leadership; trust issues with association’s leadership; undemocratic selection of the association’s leader; low credibility and lack of transparency of management; lack of visible incentives to join or remain with an association; lack of professional staff to support the association; poor linkages with other associations, technical and service institutions; low level of participation of members and lack of facilities such as offices, equipment and other facilities. The **external factors** that can lead to weakness within associations are mostly those that have an adverse effect on the aquaculture sector in general, particularly an uncertain legislative environment, limited or ambiguous legislation and those that give unnecessary constraint on farmers’ gaining the capabilities to access and utilize resources such as capital (including credit), technology and markets.

Among the many **opportunities** for an association, the important ones mentioned in case reports are to be able work with government to develop policy and programmes and establish or improve infrastructure, facilities and services for the aquaculture sector or the industry subsector. A critical opportunity is to protect members’ legal interests. In a developing country, the socially oriented mission of an association would include increasing employment opportunities and food security in rural areas. Bringing attention to the issues of the industry and engaging in dialogues with government and the other stakeholders to clarify and find resolutions to these issues is a very important mission of an association. A national association should also work with government in providing reliable statistics and information about local conditions. Giving such information should not be considered as interference but instead gives the opportunity to make better policies and decisions.

The significant **threats** to the viability and effectiveness of associations include onerous government regulations, tendency of government to interfere in management of the association, unpredictability of government policy, and the tendency of a few rich and powerful farmers to influence the association for their interests and to capture benefits. Failure to retain membership is an ever-present threat to associations, especially if members struggle financially to achieve membership fees or struggle to see any positive benefit to them. As with the weaknesses, most other threats are those that impinge on the ability of farmers and individual enterprises to economically acquire, effectively manage and properly utilize productive assets and resources and to access markets.

FACTORS ASSOCIATED WITH STRENGTH, EMPOWERMENT AND SUSTAINABILITY

The cases provide qualitative descriptions of each attribute based on the SWOT analyses, the associations’ linkages and interactions with stakeholders, and their

performance and achievements. Strength, empowerment and sustainability are not mutually exclusive. Having strength and empowerment does not automatically lead to long-term sustainability, for example. However, having elements of all three attributes does make for successful associations.

Strong: The common characteristics of strong associations in the case studies are a democratically elected board, democratic and transparent procedures, a dedicated leadership committed to pursuing the associations' objectives and the goal of the industry, an equally dedicated and active membership, a well-articulated mission statement and clear goals that are shared by members, and unambiguous government policies and regulations. In most of the cases the strongest associations are often those with dedicated individuals, with examples coming from Kyrgyz Republic where two key officers of the National Trout Farmers Association of Kyrgyz Republic – the chairman who is elected and the treasurer – serve without remuneration; and the women's club in the Philippines, which has been led by the same president, a retired civil servant who is 77 years old, since its foundation.

The associations draw strength from being recognized by and represented in government policy decisions and from their interactions with the science and technology sector, government and private industry service providers, and the mass media. Capacity-building programmes from government and the research and development sector, as well as from NGOs, are crucial to the development of the knowledge and skills of members, which can enhance the viability of the association. A crucial capacity is the professionalization of the association, particularly its leaders and members and in its management.

Empowered: There is a saying that goes “it only counts if it works and it only works if it counts”. Assuring that associations both work and count is a vital issue in the management and development of aquaculture. The Sri Lankan case report offers an interesting perspective for assessing empowerment attributes, whereby an empowered association invariably becomes strong and sustainable. The suggested five modes of empowerment relate to finance, infrastructure, education, and socio-economic and political empowerment. Whilst these can happen at a local level, through a localized association, the Bangladesh and Sri Lankan case study highlight the importance of a national or apex association. Before 2015, Bangladesh had no national association of fish farmers and fish hatchery owners. District or sub-district level associations have been formed but have mostly lapsed into inactivity, with a few exceptions. Their contribution to the industry's development has been confined to a few local economies, while their national impact, in leading policies development for example, has been insignificant. A national association has the ability to fill this gap. The Philippine case study of a rural improvement club of women farmers, highlights the importance of being recognized (including being helped by mass media coverage) for excellence or remarkable achievements. It has become a model association in the community and is a role model for other organized groups in the region, having received several awards of recognition for their exemplary achievements. In the Viet Nam case, empowerment is endowed by its having been established by the Peoples Committee and working closely with government fisheries agencies and having close links with research and development institutions in the province, particularly the Research Institute of Aquaculture No. 3, Institute of Oceanography and Nha Trang University.

Sustainable: Efficiency and stability are the essential requirements for achieving organizational goals. If these requirements were not satisfied, planning and implementation of effective actions could be difficult. The cases studies confirm two

requisites of stability: adequate financial resources and continuing commitment of members. Associations can exist for a long time but being long-lived might be its only achievement. A case in point is the Khan Hoa fisheries Association in Viet Nam. Although relatively strong, and empowered, its long-term sustainability is questioned because of the large heterogeneity of its membership, which makes it difficult to develop a strategy or execute a project that is relevant to the diverse needs and interests of the four kinds of members i.e. fishers, fish farmers, hatchery operators and seafood processors. As a general association, and not a species-specific or sub-sector specific association it has difficulties in achieving its goals and maintaining satisfaction among its members.

LESSONS AND PITFALLS

The case studies provide evidence that largely affirm the benefits and advantages of being associated. Among others these include:

1. effective representation in government policy making and programme planning;
2. platform for discussion of industry issues;
3. support to compliance with legislation and standards;
4. increased leverage for equitable transactions with input suppliers and product buyers;
5. access for small farmers to the wider value chain;
6. development of viable and robust economic production models to ensure the financial stability of small farmers.
7. capacity building programmes for members;
8. increased efficiency and reduces cost to government and service providers;
9. leverage for attracting technical and financial assistance;
10. adoption and sharing of technology, experience and lessons learned among members; and
11. pools intellectual and otherwise limited material resources of individual members into a larger more efficient and effective resource, for everyone's benefit.

The case studies also provide examples of the potential pitfalls for an association:

1. with large and small-scale farmer members, the larger and usually more powerful members tend to dominate and advance their own interests;
2. government interference in management of the association, such as in the choice of its leader or board members, can negatively impact its ability to function effectively on behalf of members.
3. Government's tendency to co-opt the association for political ends, and the tendency of the association to be over-dependent on government subsidy;
4. over-recruitment of members, for the sake of numbers and potential revenue from membership fees;
5. factionalism within an association;
6. reliance on people to run the association who are unwilling or unable to provide their full attention;
7. heterogeneity in membership makes it difficult to develop a programme or projects that all members would find relevant to their interests; and
8. An association is not one person, and while longevity and dedication in an association role (e.g. leader) can provide stability and a source of strength, failure to develop the experience and skills in future leaders of an organization can negatively impact an association's progress.

RECOMMENDATIONS

Policy and action-oriented recommendations were generated through stakeholder discussions and country-based workshops in each of the case studies; the former

directed towards government, and the latter towards the associations. The case reports propose policies and actions that respond to a combination of strategic and generic needs, and those that are specific to the context of the case associations evaluated. The recommendations that stand out for their high relevance to the three attributes of strength, empowerment and sustainability were (i) professionalization of the association, (ii) constant improvement of the technical capacity of members, and (iii) development of a cluster mode of cooperation among members and their operating as a business enterprise.

Professionalization of the association should be targeted at training of leaders, board members, and all members in leadership and management skills; improvement of officers and members' ability for strategic planning, organizational development, and financial management; development of a strategic communications and information systems, including for collection, processing and dissemination of industry/sector data; establishment of a well-equipped and well-managed offices; and setting standards of behavior and adhering to them.

Constant improvement of management and technical expertise of members is needed especially on awareness and application of innovations in products and processes, risk management, and farm enterprise planning and management.

A cluster mode of operation by members is recommended, through collective endeavors, to take advantage of the various expertise and resources in an association and between associations; to build competitive advantage, improve production efficiencies, reduce costs, and facilitate adoption of better management practices. The cluster should operate as a business entity, even where a cluster could be, by itself, an informal organization of farmers. As the Bangladesh study focuses on the formation of farm clusters (see Section C: Report of the Regional Workshop), and hence the cluster offers numerous advantages to small farmers of the country. Effective branding of an association helps establish backward and forward linkages with all stakeholders in the value chain; facilitates sharing of information on innovative practices and risk management; helps small farmers address the social and financial risks associated with small-scale farming; improves access to credit and other inputs as well as to product markets; and facilitates the development of a credible traceability system.

Other recommendations include:

- a regional initiative to intensify empowerment of small farmers organizations;
- Government action to support small holders to acquire membership in regional and global food production initiatives;
- strong support for the empowerment of women in fisheries and aquaculture;
- networking with various stakeholders operating at local, national and international levels;
- media interaction and exposure to inform the public of activities and achievements and for good public relations, including more effective use of social media;
- leadership succession is needed to develop future leaders by, among other ways, training and mentoring; and
- the need for clear, relevant policies and regulations and a favorable enabling policy environment.

PART I: RATIONALE, OBJECTIVES, SCOPE AND METHODOLOGY

Rationale

Small-scale operations predominate in Asian aquaculture. (Lack of) size tends to limit the opportunities of small-scale farmers in so many ways, but many of these limitations could be overcome by being associated. The benefits to small farmers of being associated could be illustrated by highlighting the hurdles faced by small

farmers (“small farmers” in this report includes small-scale fish farmers and hatchery operators). Common constraints for small farmers include:

- bargaining power with input suppliers and product buyers is limited;
- economies of scale are low which makes expansion of production, intensification, value addition and marketing relatively costlier than for a large operation;
- transaction costs are high due to small scale production, poor infrastructure, and weak linkages with other stakeholders in the supply chain;
- sometimes, due to an imbalance in power between a buyer and small farmers, means farmers must enter into an agreement (e.g. for input supply of sale of harvested products) that is unfavorable to them;
- small-scale farmers, with few assets, invariably have limited access to services such as extension and rural credit;
- competitiveness in product marketing is weak;
- access to, processing and use of information and technology are limited and can be expensive;
- lack of awareness of day-to-day prices of inputs and products mean small farmers can receive less or pay more than the prevailing rate;
- ability to comply with production and marketing, and environmental and social standards is weak, or compliance can be expensive;
- tendency to buy low quality, cheap input because of lack of operating capital;
- for hatcheries, poor brood quality, use of under-sized broodstock or using the same broodstock year after year, can result in poor quality fish seed and low prices paid;
- sometimes farmers are compelled to sell product even when the market price is unfavorable, being unable to extend the production cycle because of lack of capital (to purchase feed, pay creditors, pay workers and other expenditure items); and because there are liabilities that may be due;
- weak or no link with service providers (e.g. fishery agency, research institutes, universities, NGOs, credit institutions);
- either overlooked or unable to take part in technical training programmes arranged by government and NGOs;
- lacking skills to be able to produce products more effectively and efficiently, and to grow business through short-term production planning and long-term enterprise planning; and
- policies, programmes and services are biased, even if inadvertently, towards the needs and circumstances of the large commercial and the industrial scale enterprises.

Numerous forums, reviews and experiences have illustrated that being associated can overcome many of these constraints (Kassam, Subasinghe and Phillips, 2011; Hough and Bueno, 2003), and that being strong, empowered and sustainable are key attributes that associations should aim for.

Given the predominance of small-scale farmers in Asia, five countries were selected as case studies, from Central, South and Southeast Asia, giving a wide geographic coverage, that contained a mix of different types of associations. The countries (in alphabetical order) and associations evaluated were:

1. Bangladesh: a district-level hatchery owners' association with additional information on one cooperative fisheries society and one newly formed national association;
2. Kyrgyz Republic: a national trout farmers association with additional information on nine small-scale local level fish farmers associations;
3. Sri Lanka: a district association is featured while a composite of 23 ornamental fish farmers associations from seven districts and a special development zone are analyzed;

4. The Philippines: a community-based women's rural improvement club engaged in farming, processing, marketing and, most recently, exporting of milkfish (Chanos chanos); and
5. Viet Nam: one provincial fisheries association and three district associations in the same province, whose members include fishers, fish farmers, hatchery operators and representatives of seafood processing plants.

Objectives

For each case, the studies aimed to:

- a. Assess strengths, weaknesses, opportunities and threats to associations (SWOT analysis)
- b. Identify, describe and explain key factors that constrain the strengthening, empowerment and sustainability of farmers' associations.
- c. Identify opportunities for capacity building of farmers' and hatchery owners' associations.
- d. Recommend policy options for empowering and sustaining farmers' and hatchery owners' associations.

Expected outputs

These were:

- a. Key internal and external factors are identified, which should be addressed to strengthen, empower and sustain (SES) farmers' associations.
- b. A policy-oriented set of recommendations for strengthening, empowering and sustaining farmers' associations is proposed.
- c. Action-oriented recommendations addressed to fish farmers associations and to institutional service providers to farmers and hatchery owners are proposed.

Scope

The focus of the study was to identify the factors associated with achievement of the three attributes, namely strong, empowered and sustained; rather than on determining the factors that contribute to the "success" of an association. That said, the three attributes and success are interlinked and their achievement would, in the ultimate result, give rise to a successful farmers' association, characterized by Crowley *et al.* (2005) (cited by Kassam, Subasinghe and Phillips, 2011) thus: *"Successful organizations are those that achieve the objectives agreed upon by members; retain or expand their membership; progress towards financial and managerial self-reliance and sustainability, inspiring members to maintain their equity stake in the organization; and improve self-esteem and the economic and social wellbeing of members."*

Each of the attributes have several indicators, which were agreed for use in the case studies (Annex 1), to capture information that would adequately indicate the success (or lack of it) of an association. The indicators and the methodology were designed to show how the benefits of being associated can be shared among members and how society may benefit from the existence of associations.

Methodology

The methodology comprised three major activities; namely, SWOT analysis, key informant survey and stakeholders' meeting. The essential components of the study activity were:

- A desk review to gather background information;
- key informant surveys using a semi-structured questionnaire (the types of key informants and the generic semi-structured key informant survey questionnaire is defined in Annex 2);
- analysis of desk review and key informant surveys;

- stakeholder meetings to validate the results of the country-based reviews and survey; and
- summary of review and survey results at case study level.

The second major step was a regional workshop to:

- present and discuss results from the case studies from the five countries; and
- prepare a synthesis report to be shared with other countries.

Definitions

The three desired and interlinked attributes of a farmers' association, being strong, empowered and sustainable, are operationally defined as follows:

- 1) **Strong:** the organization's capacity to efficiently and effectively achieve its organizational goal and objectives.
- 2) **Empowered:** the organizations ability to interact, negotiate, collaborate, and work with other stakeholders on equal terms for the purpose of advancing common aspirations (e.g. policy goals) and achieving common objectives (e.g. development objectives). In so doing, it does not compromise its values.
- 3) **Sustainable:** the organizations ability to function at an effective level and maintain organizational viability, having sufficient resources to operate continuously, without the need to rely on subsidy to maintain organizational integrity and conduct essential functions.

Against each attribute there were several indicators used in the study, listed in Annex 1.

PART II. CASE STUDY HIGHLIGHTS

Part II of this synthesis document gives an overview of case studies, outlining the nature and essential characteristics of the associations present in each country, the socio-economic context in which they operate, and finally giving a summary of the policy and institutional contexts.

Brief descriptions from cases studies

This section gives a brief description of the country case studies (in alphabetical order) summarizing the nature of the associations present and their essential characteristics.

Bangladesh: Jessore District Fish Hatchery Owners Association and the newly established Bangladesh Fish Hatchery and Culture Association with a brief reference to a fishers' cooperative that is seen as successful

The study features three associations but carried out a SWOT analysis of the hatchery operators' associations of Bangladesh, as a composite case. The oldest running hatchery association was formed by the fish hatchery owners of Jessore, one of the more important fishery districts of Bangladesh, called the *Jessore zila Matshya Hathery Malik Samity* or Jessore District Fish Hatchery Owners Association. Its major distinction, along with several district fish farmers or fish hatchery owners' associations that have been organized but became inactive, is that it is formally registered with the government. There are, however, local fish farmers association with no formal registration that have continued their activities successfully over the years. A good example is the *Gopalpur Motso Somobay Somiti* (GMSS) or the Gopalpur Fishers Cooperative Society in Tarakanda, Mymensingh. Their impacts are mostly local with members attending training activities organized by government, non-government organizations, and research and academic institutions (e.g. Department of Fisheries (DoF), NGOs, Bangladesh Fisheries Research Institute, Bangladesh Agricultural University and other schools); as well as exchanges of information and technology, swapping quality broodstock and sharing information on markets for their products.

JDFHOA has 35 registered members. Its Executive Committee is composed of the President, 3 Vice-Presidents, a General Secretary, 2 Joint Secretaries, Organizing Secretary, Publication Secretary, Cultural Secretary, Office Secretary, Finance Secretary, and Members (9). They are elected by the members during the annual general meeting. It has a well-equipped office in Ward no. 6 in the municipality of Jessore. The annual membership fee is BDT (Bangladesh Taka) 5 000. It had more than BDT one million in its account in 2016 and growing annually. The association is well known and has a good reputation with the fish farmers of Jessore and other districts believing that members of the association produce better quality fish seed. Fish farmers and fish hatchery owners buy seed from the association members and seek their advice on good fish farming and hatchery techniques. The members also maintain good relations with the input suppliers. Benefitting from the association's reputable "brand", members' businesses have prospered.

The GMSS has its office near to the fish farms of its members, in Tarakanda, Mymensingh. Much smaller than JDFHOA, with 11 members at present, they are nonetheless well-known in the community. A monthly membership fee of BDT100 is collected and at present the association has assets in cash and kind worth BDT0.5 million. It purchased three seine nets, two lift pumps, 20 fish-carrying drums and two digital measuring scales, to rent out to members and non-members, which adds to the society's revenue. Members of GMSS are highly motivated, seek opportunities to improve their farming techniques, and assist others to improve theirs. Fish farmers, hatchery owners and the public know this 11-member association very well. The members are influential in the community, have good relations with the providers of inputs (seed, feed, fertilizers and others) and technical services (BFRI, BAU, local office of the DoF and NGOs) and are always at the forefront to assist other fish farmers with advanced fish farming technologies, news and information of quality fish seed, upcoming training and other events. The cooperative maintains good relations with fish traders.

However, both the JDFHOA and GMSS have had little impact at the national level. This gap prompted an initiative to form a national association.

Activity was initiated in 2014, with the move to organize the Bangladesh Fish Hatchery and Culture Association (BFHCA). It is envisaged it will represent the fish farmers and hatchery owners of the country. Activists who initiated the activity were the fish farmers and hatchery owners from three important fishery districts, namely, Mymensingh, Bogra and Jessore. BFHCA was formed in 2015, with a 13-member ad-hoc committee constituted as interim managers and, among other actions, applied to the government for registration. The last phase of the registration process is yet to be completed. Meanwhile BFHCA has begun making plans for the improvement of fish farming and fish hatchery sectors and assisting stakeholders.

Kyrgyz Republic: National trout farmers association and nine small-scale farmer associations

National Trout Farmers Association and nine small-scale fish farmer associations. The development of fish farmers associations is in its infancy in Kyrgyz Republic. To date, a total of nine small-scale fish farmer associations comprising 173 members have been organized. In addition, a National Trout Farmers Association with 34 members operating in the Chui, Issyk-Kul and Jalalabad regions has been formed. While the nine small-scale farmer associations were developed through an FAO-supported donor programme, the national association was established by one of the leading trout producers in the country as a vehicle to raise issues related to the trout culture industry in the country, and to lobby the Ministry of Agriculture, Food Industries and Melioration to provide a more enabling environment for sector development.

The association has been instrumental in having aquaculture formally recognized by government agencies as an agricultural activity, such that imported inputs including feed and seed are exempt from importation tax and they are exempt from the VAT (value added tax). The association has also been instrumental in organizing training (10 so far) for its members, promoting good management practices, and bringing foreign experts to the country to assist in training and technology transfer. It also provides market information and encourages exchange of experiences among the members; cooperation among farmer members has become close. At present the Association is solely concerned with the development of the trout industry. It is run on a voluntary basis with the elected chairman and treasurer taking no salary for services rendered. Of the nine small-scale fish farmer associations that have been assisted developed by FAO, five are being provided both technical and material support in the form of training and the establishment of small-scale hatchery (carp and trout) and fish feed manufacturing facilities.

The Philippines: Women's milkfish farmers' club under the Rural Improvement Club programme of the country

The Binmaley Rural Improvement Club (BRIC) is affiliated with the province's Pangasinan Rural Improvement Club (PRIC), which is the provincial chapter of the organization. The local community council, through the municipal agriculture office and the PRIC assisted in the formation of BRIC and election of its officers from the 15 pioneering members. The association has expanded to 120 members (2 are men) at present, although only 85 are active. Most of the members are residents of Barangay (village) Buenlag where the association is located. The rest are from the two neighboring communities. Most of the members are wives of milkfish farm workers and most can be categorized as poor. The club operates a small farm with a total area of 0.5 hectares, including the area on which the fish processing plant stands. Some members, however, have their own small farms. They process their own harvest of 2 000 kg, from the common farm, every four months and buy additional requirements from reliable farms and traders (called consignors in the Philippines) from accredited farms in Binmaley town and the adjacent town of Labrador to fill up the capacity of the plant and meet the increasing demand. The projected capacity of the processing plant is 10 000 to 15 000 kg a month. This would require 10 – 15 hectares of brackish water ponds.

BRIC is going to accredit supplier farms for fish quality and reliability of supply. The processing plant was provided as a "shared service facility" through a government programme, under the Department of Trade and Industry that assists small and medium rural enterprises. The assistance included training in fish processing and enterprise management. The Club has received several awards for its success in promoting food security and rural development. From production for local sales, it has progressed into processing, expanding its product line, expanding its market to other provinces and, of late, tapping the export market.

Sri Lanka: composite of 23 small-scale ornamental fish farmers association in seven districts and a special agricultural development zone, the Mahaveli System, with an example of a successful association featured

The case presented as a success story the Puttalam Ornamental Fish and Aquatic Plants Rural Fisheries Association in Puttalam district, which has 39 members. It was established in 2009 as a cooperative society with 140 members. The reduction in membership happened when the National Aquaculture Development Authority (NAQDA) commenced a programme on monitoring and regulation of the ornamental fish sector in 2003, that required that all ornamental fish farmers' associations were

registered under NAQDA Aquaculture Management Regulations. As a result, the co-operative dissolved itself and re-established as an association registered with NAQDA.

The association satisfies nearly all criteria for “strength” having drafted its constitution in line with the National Fisheries Federation (NFF) guidelines, with a Board whose members were elected following democratic procedures. The association conducts a monthly meeting and an annual general assembly. There is complete transparency in accounting; the accounts are audited by an external auditor and the auditor’s statement is distributed to members before the annual general meeting.

The association maintains a revolving fund derived from membership fees. It holds ornamental fish and aquatic plants exhibitions regularly, alone or in collaboration with the Puttalam Provincial Council. It has social programmes, such as staging plays for the public. The proceeds from ticket sales at exhibitions and social programmes go are added to the associations revolving fund.

Although membership decreased when the co-operative society converted into an association, it has since successfully retained the present membership. This has been mainly due to the cooperation among members in the form of providing financial, technical and social assistance. The association also receives some financial assistance from the Provincial Council to buy, for its members, equipment such as shade nets, harvesting nets, water pumps, air-blowers and other accessories at discounted prices.

Members have participated in the ‘Aquarama’ Ornamental Fish and Accessories Exhibitions (in 2009, 2011, 2013 and 2015). It is the only association to win over 30 international awards at competitions held during these exhibitions. Their participation had been assisted by the Sri Lanka Export Development Board (SLEDB) and the Puttalam Provincial Council, to cover airfares and competition fees. The association was also cited as the Best Ornamental Fisheries Association in Sri Lanka at the ‘Min Visithuru’ 2016 Trade Fair and Exhibition in Colombo, organized under the patronage of NAQDA.

Three members of the association have expanded s farmers and have developed the capacity to become exporters, attended the ‘Interzoo’ Petfair Exhibition in Nuremberg, Germany. Members currently export 30 varieties of guppies, along with swordtails, platys, goldfish, carps and other species.

Associations face a number of constraints, the more important being (1) the difficulty to obtain loans from Banks due to stringent collateral and surety conditions; (2) difficulty of acquiring new varieties of broodstock from producing countries in the region and from east European countries for developing new lines; (3) shortage or high price of land for expansion of growing and nursing facilities; and 4) inadequacy and high price of inputs such as quality on-growing feed and artemia.

Viet Nam: One provincial and three district fisheries associations in Khanh Hoa Province, that include fish and shrimp farmers in their membership

Khanh Hoa Fisheries Association was established in 2001 by Khanh Hoa’s Provincial Peoples Committee, with its office in Nha Trang City, Khanh Hoa Province. In 2016, KHAFa had 1195 members, and of these 178 are fish farmers, 453 are hatchery operators, 527 are capture fishers, and 13 are representatives of seafood processing plants. It has a 26-member executive board, including a Chairman and four vice-Chairman and specialist officers for planning and finance, science transfer and training, inspection, local focus and member development. One of the ways the district association maintains contact with members is through its website².

Major responsibilities of the district level association are:

² www.khafa.org.vn (contents in Vietnamese)

- training and support to members and fostering members' co-operation in activities that improve their knowledge of fisheries and aquaculture science and technology;
- protect legal rights of members;
- make aware, explain and clarify fisheries laws, regulations & relevant information to members;
- propose policy recommendations to government; and
- generally, to contribute to the development of the fisheries sector of Khanh Hoa Province.

Cam Ranh Fisheries Association was established in 1998 by Cam Ranh City Peoples Committee. It has 275 members and coordination are through its office in Cam Ranh City, Khanh Hoa Province. The Cam Ranh Fisheries Association has an executive board with a chair, two vice chairs, and two members. It has three departments, dealing with finance, planning and inspection. Decisions by the executive board require a simple majority, i.e. three out of five members to agree.

The five main roles & responsibilities of the association are:

- Promote internal & external co-operation among members on the mandates and responsibilities of the association
- Protect, defend legal rights of Members
- Acquire and train members in new technologies and provide related information to members
- Co-operate with stakeholders to implement relevant projects conducted in Cam Ranh City & provide scientific services to Members
- Provide recommendations to policy makers related to fisheries development in Cam Ranh City.

Van Ninh Fisheries Association was established in 2010 by The Peoples Committee of Van Ninh District. It has 22 Members managed through an office located Van Gia Town, Van Ninh District, Khanh Hoa Province. Ninh Hoa Fisheries Association was established in 2012 by Ninh Hoa Town Peoples Committee with 39 Members, now located in Ninh Hiep Ward, Ninh Hoa District, Khanh Hoa Province. In both cases the structure of the association and responsibilities undertaken are the same as Cam Ranh Fisheries Association.

The immediate opportunities for Vietnamese associations include the following:

Khanh Hoa Province is positioning itself to become "the" hatchery centre for the South-Central region of Viet Nam and is in a strong position given 453 association members operating fish and shrimp hatcheries. Plans from the Directorate of Fisheries call for relocation and modernizing hatcheries along the coast, which offers a good opportunity for members to improve their capacity for producing more and higher quality seed. Fish farmers have easy access to the research institutions in Nha Trang City. This gives them the opportunity to learn new technologies from training courses, workshops as well as visits to model or demonstration farms established by the institutes.

Viet Nam has negotiated and signed many Free Trade Agreements (FTAs), which present both opportunity and challenge to fisheries associations. Opportunity includes access to regional and international markets, where Viet Nam's seafood has many competitive advantages, with no or low tariffs imposed by the FTAs. The challenge, however, is to comply with the many, and for small farmers, complicated global product standards.

Members of fisheries associations in Khanh Hoa Province have been developing eco-products and promoting awareness by consumers of their own brands. One of the best recognized products is the seaweed locally known as sea grapes (*Caulerpa* sp). Members are now producing fresh and the higher-value salted sea grape products for export to Japan, Korea, Taiwan Province of China and the United States of America.

The socio-economic contexts of the case studies

Bangladesh: Fish hatchery operators' associations

The fisheries sector contributed 3.69 percent to national gross domestic product (GDP), 23.1 percent to the agricultural GDP and 1.92 percent to foreign exchange earnings in 2014-2015. Fish provides 60 percent of animal protein consumption in the country with per capita fish consumption of 18.9 kg per annum. In 2014-2015, more than 55 percent of the total fish production (3.685 million tonnes) was from fish farming. In addition to the 1 320 000 full-time fishers, almost 14.7 million people are involved in aquaculture including fish farmers and hatchery owners.

In freshwater aquaculture, the main species are Indian major carps, exotic carps, Nile tilapia and pangasius catfish. Culture practices are the improved-extensive and semi-intensive methods. Besides culture of carps, tilapia and pangasius catfish, mono- or mixed-culture of silver barb, climbing perch and a number of other catfishes are also practiced. Average fish production in the ponds is 4 332 kg/ha/year. Freshwater prawns are also cultured with carps in some areas.

In brackishwater aquaculture, farming of freshwater prawns and marine shrimps along with fattening of mud crab is widespread in Satkhira, Khulna, Cox's Bazar and Bagerhat District. The black tiger shrimp (*Penaeus monodon*) and giant river prawns (*Macrobrachium rosenbergii*) are the main species cultured in these areas. The total production of shrimps and prawns in 2014-2015 was approximately 0.23 million tonnes. At present there are 1 004 fish hatcheries (government 136, and private 868). In 2015, some 547.5 tonnes of fish spawns (537 tonnes from private hatcheries and 10.5 tonnes from government hatcheries) were produced. The main sources of fish seeds in Bangladesh are the private and government hatcheries; a small quantity is collected from rivers.

Kyrgyz Republic: National trout farmers association and nine small-scale farmers' associations

Aquaculture has slowly but steadily rebounded from the drastic fall in production and support it went through when the country became independent with the dissolution of the Soviet Union. From a low 200 tonne annual output in 2009, it has produced 2020 tonnes in 2016. Local demand remains low with an annual per capita consumption of a mere 1.2 kg. A mix of factors had been associated with decline in aquaculture, compared to pre-independence, including loss of technical expertise, closure of the operations of input suppliers (feed and seed), difficult adjustments from a centrally planned to a market economy, unsuccessful privatisation of state infrastructure (especially the fish farms, hatcheries, feed mills and fish markets), a decline in governance mechanisms and government support, reduction in finance and investment into the sector, and the influx of imported cheap fish products to fill the supply gap. But the period starting 2007 marked a resurgence of interest in aquaculture and inland fisheries from, among other impetus, an intensified FAO technical assistance to the region (Central Asia and the Caucasus) in partnerships with several donor governments (such as Turkey, Finland and China).

The development of fish farmers associations is in its infancy in Kyrgyz Republic. There are concerns related to their long-term institutional and economic sustainability and a felt need to strengthen their capacity. The small-scale associations focus on improving the capacity of resource poor farmers and women groups, where inculcating novel farming innovations is best viewed as a long-term intervention. Furthermore, developing viable and robust economic production models to ensure the long-term financial stability of the farming systems also pose serious challenges to the associations' members who are typically excluded from or have great difficulty accessing the wider value chain, where the benefits of value addition and effective marketing can lead to significant increases in profits.

The Philippines: A rural improvement club of mostly women milkfish farmers and processors

Aquaculture has a long history in the Philippines with the earliest fish culture operation growing milkfish in brackish water ponds. Production from aquaculture was 2.338 million tonnes in 2014, with milkfish accounting for 390 200 tonnes. The aquaculture value of this milkfish production from brackishwater ponds was 35 607 million pesos. The case association is located in the town of Binmaley of the Province of Pangasinan, a major fish supplier in Luzon, and a major producer of salt as well. It has extensive fishponds, mostly for raising bangus or “milkfish”, along the coast of the South China Sea. The case association (Binmaley Rural Improvement Club of women) is in a predominantly aquaculture community. The municipality is called the “fishbowl” of the province. Milkfish production literally feeds the town population because it is the prime product raised in fishponds built from swamps and natural pools. Milkfish aquaculture production raised the economic status of the town above all the 4 cities and 44 municipalities of the province of Pangasinan. This has earned the municipality the title “Bangus Queen” of the Philippines.

Sri Lanka: Ornamental fish producers' associations

Farming of freshwater ornamental fish contributes significantly to fisheries trade. Farming is mostly under intensive systems in earthen ponds and cement tanks. It is capital intensive with high operational costs. In Sri Lanka, ornamental fish breeding and rearing in ponds for export is either a lucrative enterprise for high-income investors/exporters or an alternative livelihood to supplement incomes of middle and low-income earners, rather than a means for poverty alleviation. The larger enterprises offer secondary benefits to the poor in the form of employment, but among middle to low-income groups the industry provides fewer opportunities to the poor because these enterprises tend to use family labour.

Of the three groups the middle and high-income farmers are also exporters or have direct access to exporters. They are able to demand better prices from exporters and their agents and have a higher bargaining power with various input suppliers. Low income farmers are the most affected in terms of, among various other constraints, low bargaining power with input suppliers, lower economies of scale, higher transaction costs due to small scale production and poor infrastructure, unfavorable agreements with buyers, weaknesses in product marketing due to lack of knowledge of product prices, inability to access the latest technology, and inability to acquire good quality broodstock. In this regard, the low and middle-income freshwater ornamental fish farmers decided to form fisheries associations to address, with unity and strength, the above issues.

The Sri Lanka ornamental fish export industry comprises the exporters of ornamental fish, invertebrates and aquatic plants, and suppliers/breeders and out-growers. The exporters belong to a strong exporters' association. The members are breeder/farmers of freshwater ornamental fish with long experience and high technical skills and who have become exporters due to this long experience. There is another group that had been predominantly exporting wild caught marine fish and freshwater fish who, with CITES/IUCN restrictions on exporting wild caught species, switched to breeding freshwater fish varieties, doing the breeding themselves or employing renowned breeders of rare varieties of ornamental fish.

The members of the Small-Scale Ornamental Fish Breeder/Farmers Associations (SOFB/FA) are the freshwater fish breeder/farmers of in middle and low-income groups but the most vulnerable group are the out-growers. At present there are many breeders and out growers in most districts, but especially in the Western Province, servicing exporters and supplying the local trade. The small-scale ornamental fish breeder/farmers/out growers are middle income groups who have regular jobs or

are self-employed in other trades or are retired civil servants. It is these small-scale ornamental fish breeders/farmers/out growers who have formed associations to address to address their problems.

The monthly income of small-scale ornamental fish farmers ranges from LKR (Lanka Rupees) 15 000 to LKR 30 000. The medium-scale farmers' monthly income ranges between LKR 40 000 and LKR 100 000 and that of the top farmers'/exporters up to LKR 1.0 million. All associations indicated that, other than the funds created within the association from membership fees, there are no other financial assets within the associations. One or two associations in certain districts have organized ornamental fish exhibitions for the public with the assistance of local Provincial Councils, as awareness programs to educate the public on the ornamental fish trade, where ticket sales have been deposited in the association's savings account to boost available resources.

Viet Nam: Provincial and district fisheries associations

Khanh Hoa is a coastal Province with 385 km of mainland coastline and 135 km on provincial islands. Khanh Hoa Province has a high potential to develop aquaculture with its numerous bays and lagoons covering an area of some 400 000 km². Presently the potential area for aquaculture is 7 564 hectares, although the current farmed area is 5 198 ha, of which 2 288 ha is marine aquaculture. The rest is pond aquaculture for both brackish water and marine species. In 2015, total production from farming was 16 798 tonnes. Within this total, whiteleg shrimp was 5 925 tonnes, finfish raised in cages was 4 242 tonnes, 2 973 tonnes of mollusk and 1 268 tonnes (dry weight) of seaweed.

The province has 461 hatcheries that produced some 2 700 million fingerlings in 2015. Other than whiteleg shrimp and black tiger shrimp as the main species, hatcheries are also developing many high value species such as lobster, *Babylonia* snail, and marine finfish species such as grouper, seabass and pompano.

Policy and institutional contexts for the case study associations

Bangladesh

The Department of Fisheries and a number of non-government organizations have recently initiated projects and programmes to increase the productivity of fish farms and hatcheries. The plan now is to develop more varieties of fish and higher quality fish seed. The government has introduced a variety of efficiency models, and to take advantage of the projects and the training and development assistance provided, fish farmers and hatchery owners need to be united and associated so they can effectively convey their messages, needs, problems and aspirations to Government and NGOs.

A very recent action was to organize a national association of fish farmers and fish hatchery owners. This was inspired by a study tour to Viet Nam in 2014 by several large fish farmers and fish hatchery owners. The visitors were impressed with the extent to which the Vietnamese Association of Seafood Exporters and Producers (VASEP) is influential in aquacultures development and marketing, and has overall control of the fish farming and hatchery sector in Viet Nam. They liked VASEP's functions of protecting the legal interests of its members and bringing their needs and concerns for consideration in government decisions on fish production, processing and trade. On return to Bangladesh and after several meetings attended by fish farmers and hatchery owners from three important fishery districts, namely Mymensingh, Bogra and Jessore; the Bangladesh Fish Hatchery & Culture Association (BFHCA) was formed in 2015. The 13-member ad-hoc committee led the initiative and applied to government for registration. BFHCA executive board has also initiated plans to improve the fish farming and fish hatchery sector of the country and began assisting key stakeholders in this area.

Kyrgyz Republic

The Department of Pastures, Livestock and Fisheries (DPLF) of the Ministry of Agriculture, Food Industries and Melioration (MAFIM) is the government agency tasked with leading aquaculture development. The primary legislative tools used to regulate the sector is the Law on the Fish Industry introduced in 1997, and its associated regulations. The institutional mandates and regulatory frameworks that the private sector and fish farmer associations must comply with are complex. In this regard, the DPLF acknowledges the need to update them to provide a better enabling environment for private sector investment into the sector.

Other government agencies that are involved in the regulation of aquaculture activities and would have some influence on the farmers associations include the State Agency for the Environment and Forestry, which is mandated to undertake technical inspections of facilities; the Ministry of Ecology and Emergency, which is mandated to monitor the environment and maintain the ecological integrity of ecosystems; the National Academy of Sciences comprising the Biosphere Institute, the Scientific Centre for Fisheries, and the Centre for Ichthyology and Hydrobiology, which conduct aquaculture research and development; the Ministry of the Environment and Emergency Situations, which is tasked with addressing biodiversity issues, water use and the sustainable use of natural resources; the Ministry of Economics and Finance, which is tasked with implementing tax codes within the agricultural sector, rural finance and promoting investments; and the Ministry of Health, which has responsibility over food safety.

Despite the numerous ministries and institutions that are mandated to provide input into aquaculture development, the majority have minimal capacity to influence sector development. In most cases the lack of funding and technical capacity prevents these institutions from effectively executing their mandates. In addition, the institutions working in the sector are poorly coordinated, mandates are poorly defined, and their functions often overlap or are duplicated. There is little monitoring of farms, and little scientific research is being undertaken. Evidently there is a need for a more integrated approach to sector development.

A recent development, supported by the DPLF, is development of a National Fish Farmers Association. In November 2016, a national workshop to discuss plans for its organization was held. Representatives from government agencies and the private sector agreed that forming this national association merits high priority. It was anticipated this national association would be established shortly after publication.

The Philippines

There are two policies (Republic Acts) and one national programme that are directly relevant to the case study; namely the Magna Carta for Small Farmers, the Magna Carta for Women and the Rural Improvement Clubs of the Philippines. The government institutions with significant relations with the association include the Bureau of Fisheries and Aquatic Resources, Department of Trade and Industry, Department of Science and Technology (DOST), Department of Labor and Employment's Technology Education and Skills Development Authority (TESDA), the Provincial, Municipal, and Local Government Units, BFAR-National Integrated Fisheries Technology Development Center (BFAR-NIFTDC), and the Pangasinan State University's College of Fisheries.

The Magna Carta for Small Farmers (Republic Act 7607) is aimed at equitable distribution of benefits and opportunities through the empowerment of small farmers. Chapter II of the Act provides that the small farmers have the right to form into an organization and be represented in government agencies boards. As an organized group, the small farmers will be able to purchase inputs at lower cost, obtain fair prices for their products and be entitled to government subsidies and farm inputs. Farmers' rights (there are 11) and obligations (also 11) are specified. Among the rights are to

be heard and represented in the government; pursue appropriate education and skills development; and avail of technical assistance from government agencies. Among their obligations are to establish farmers' organizations; adopt recommended farm practices and inputs; adopt recommended production and marketing strategies; provide quality products at a reasonable price; pay all fees, license fees and taxes; and undertake self-help community development projects.

The Magna Carta for Women (Republic Act No. 9780) recognizes the economic, political, and socio-cultural realities affecting women's current condition. The State affirms the role of women in nation building and ensures the substantive equality of women, and men. The Act promotes empowerment of women, equal opportunities for women and men equal access to resources and to development results and outcome. Chapter V, Section 20, describes the empowerment of women and for the State to recognize the contribution of women to food production and to its sustainability and sufficiency. To further address the role of women in fisheries and food production, the Act provides a list of assurances, including rights resources for food production, including use and management of land, water, and other natural resources; equal status of women and men in the issuance of stewardship or lease agreements and other fishery rights that may be granted for use and management of coastal and aquatic resources; and, of specific relevance to the case study, provide for opportunities to empower women fishers to be involved in the control and management of catch and production of aquamarine resources but also, to engage in entrepreneurial activities and to provide economic opportunities for the indigenous women, particularly, including access to market for their produce.

The Rural Improvement Clubs of the Philippines (RIC) is a nationwide non-government organization which is rural- or village- (barangay) based. It aims at uplifting the living standard of members and making them effective and productive partners of the government in community development. It is supported by the Local Government Unit (LGU) and the Department of Agriculture. RIC's promotion of rural development started in 1953 when the Bureau of Agricultural Extension was established. Its objective is to uplift the living conditions of rural women by enabling them to gain self-confidence and learn skills essential to self-reliance and acquire experience in simple livelihood operations.

Sri Lanka

The ornamental fish export trade had no direct government involvement in promoting the industry in its early years. The only role filled at that time was regulatory, to prevent over-exploitation of wild marine and freshwater stocks. The then Department of Fisheries (now the Department of Fisheries and Aquatic Resources Development or DFARD) was more involved in regulating exports of wild caught fish and invertebrates. The private enterprises engaged in this industry applied to the DOF for permit to export certain restricted varieties of fish and invertebrates. In the early 1980's, when the Sri Lanka Export Development Board (SLEDB) was founded by an Act of Parliament, recognition was given to the ornamental industry, as a foreign exchange generator, and was assisted financially under various schemes developed by the SLEDB.

All small-scale ornamental fish breeder/farmers associations are constituted according to the guidelines set by the National Fisheries Federation (NFF), a department of the Ministry of Fisheries and Aquatic Resources Development (MFARD), with every fisheries association registered under this Federation.

The primary policy and regulatory body for the fisheries sector, as a whole, is the MFARD, although it pays no specific attention to ornamental culture fisheries, as a private sector activity, except with issues related to exports from Katunayake International Airport, which are referred to the MFARD through the SLEDB for resolution. The National Aquaculture Development Authority (NAQDA) is

responsible for development, implementation, control and regulation of inland fisheries and aquaculture. NAQDA started focusing attention on the ornamental fish trade only after 2003 with establishment of the Ornamental Fish Breeding and Aquatic Plants Propagation and Training Center (OFBAPTC). Since then it has been involved in training potential ornamental fish breeders and out-growers on breeding and farming practices. However, unlike in the food fish sector, where NAQDA has greater involvement in welfare and extension activities, its responsibility in the ornamental fish trade is still mostly regulatory. It has no separate provisions for the ornamental fish sector in its mandate but does apply those for the food fish sector to regulate the ornamental sector, which is not ideal and amendments to the NAQDA Act are recommended in the case report.

The role of the National Aquatic Resource Research and Development Agency (NARA) in the ornamental fish sector is to carry out research and development in breeding and feed development. Research findings are provided to the industry through training.

The Mahaweli Authority of Sri Lanka (MASL) was established by an Act of Parliament in 1979 to implement the Mahaweli River Diversion Scheme (MRDS). Under the scheme several dams were built to divert water to reservoirs constructed for hydropower generation and irrigation. Provision of water for aquaculture in Mahaweli areas commenced in the mid-1980s, and subsidy provided to build ponds for culture of food fish. The programme failed to provide the envisaged benefits to the farmers and the government so was deemed a failed project. But, the exporter/breeders of freshwater ornamental fish in and around Colombo saw this as an opportunity to utilize the ponds constructed under the government subsidy programme to out-grow ornamental fish fry and was the beginning of a profitable enterprise for the farmers in Mahaweli areas.

Viet Nam

The Fisheries Law was passed in 2003, but roles and responsibilities of farmer associations were only included in a revision to the Law in 2008. Before that, all FAs in Viet Nam were regulated by Decree 45/2010/ND-CP. An association is formed by a group of volunteers and is supported and guided by Government. The Fisheries Associations are managed by the Provincial Department of Agriculture & Rural Development (DARD).

The Khanh Hoa Province fisheries associations cooperate with scientific and technological institutions such as the Research Institute for Aquaculture No. 3 (RIA3), Institute of Oceanography (IO), and Nha Trang University (NTU). In addition, fisheries associations have good relations with other related associations such as those developed by fish sauce producers, tuna fishers, and other groups. The present activity encourages farmers, middlemen, feed suppliers, local buyers of aquatic products and fish processing companies to establish or join associations, so that exchange of information, knowledge and experiences on aquaculture products and businesses can be shared.

PART III. ATTRIBUTES OF THE ASSOCIATIONS

Part III provides a summary of the outcomes from SWOT analyses conducted during the case study assessments that provides a broad list of the strengths, weaknesses, opportunities and threats associated with small-scale fish farming and hatchery associations across Asia. Case study results for each country are provided in Annex 3.

This section also provides a summary of the indicators that define the three attributes, namely strength, empowerment and sustainability which reveals attributes can be contextual, depending on the social, economic and policy environments in

which associations are operating, but also provide common factors that represent an association's ability to operate and be successful.

SWOT analyses: an overview of the country cases

Strengths

The strength of associations is ultimately derived from its members, initially from a few individuals who undertake activity to set up and register the association as needed by specific countries, to developing a constitution and strategic vision, in developing a strategic plan of actions that support the issues of the membership and then pursuing these to a satisfactory resolution. None of this is easy and in the longer term the whole membership must actively participate, provide financial support through membership fees, abide by the set constitution and support the actions needed to improve their status as an association. Membership activity may be internal, such as spreading good practices and sharing experiences, having regular meetings and a formal AGM to elect the board, measure progress and discuss actions; or external, such as pursuing better terms for input services from suppliers, or lobbying government to improve the status of the members and their policy and operating conditions. In the longer-term, democratic and transparent processes within the association, most especially in the election of leaders, in decision-making, and the management of the association's funds, are vital characteristics for a strong association. Fairness is also critical, such as one member-one vote, having equal influence that is not dictated by size (of business) or political influence, and having good outcomes benefitting the majority of members and not the few.

Economic viability of members' farms is a key component of an association's strength, because it has a strong influence on the members' cohesiveness, participation in the association's advocacy activities, the ability to pay membership fees and other obligations, and to support the association's organizational development efforts and projects. However, economic viability at member level can be supported by association actions, including the improved collective ability to negotiate better terms with suppliers (of feed, chemicals and other input), achieve better selling prices, improved access to credit facilities, and through the ability to lobby government departments for an improved business environment.

Governments have a vital role in providing the conditions in which associations can best be supported, initially by ensuring associations have a legal license to operate, and subsequently through recognition of the associations' legitimate role as a partner of government in policy making, and a willingness to pursue actions that support member activities where possible. Where such actions provide positive outcomes, the building of an association's strength is self-fulfilling. Not least individual members will see improvements in their own business activity (better conditions, improved profits and so on), which serves to increase the likelihood that membership of the association is maintained or increased. Governments can also initialize contacts between development agencies, links with national and international technical assistance organizations and science and technology institutions. Association strength is drawn from such cooperation.

Broadly, the strength of each association is influenced or endowed by:

- significant interest in taking up fish farming as an occupation;
- excellent biophysical environment for the culture of the species;
- low labour costs;
- a good government policy and legislative framework;
- presence of a network of non-government organizations assisting farmers to organize and provide training;
- an extensive and efficient extension service;
- presence of strong national and international organizations that support associations;

- presence of private industries providing inputs and advice on good practices;
- presence of young and enthusiastic entrepreneurs;
- relationships with science and technology institutions;
- regular monthly board meetings and an annual general assembly meeting to elect new officers, review performance, and discuss work plans; and
- a wide base for membership.

Weaknesses

Weakness in associations derive from internal pressures, inherent within the association and external pressures, both having the potential to adversely affect association activities, effectiveness and longevity.

Internal factors include:

- having complex functions and too many and diffused objectives;
- low technical base among members;
- having insufficient women members;
- lack of a medium and long-term development plan for the association;
- management and decision-making are remote from members (i.e. members are not consulted or unable to participate in decision making processes);
- inadequate funds and high operational costs;
- poor management;
- weak leadership;
- trust issues with association's leadership;
- undemocratic selection of an association's leadership;
- high membership fees;
- low credibility and lack of transparency;
- lack of visible incentives to join or remain with an association;
- lack of professional staff, and/or development of staff, to provide leadership in the association;
- poor linkages with other associations and technical and service institutions;
- inability to approach government departments at local or national level;
- low level of participation of members; and
- lack of hard assets i.e. offices, equipment and facilities.

External factors are those that mostly have an adverse effect on the aquaculture sector in general, which affect the capabilities of farmers to access and utilize resources such as capital, information, technology and markets. The following are a summary of external factors defined in the case study reports:

- few specialists in the country;
- high cost of imported inputs especially feed and seed;
- lack of support or ancillary industries;
- low domestic demand for fish products;
- uncoordinated activities between Government agencies and Farmer Associations;
- lack of material support from Government agencies;
- ambiguous and unclear legislative environment;
- high investment costs and limited access to capital and funding mechanisms;
- monopolies on input supplies resulting in high input costs to small-scale farmers;
- linkages with relevant government agencies are limited for small scale farmers;
- lack of interest of large-scale producers with links to exporters to join small rural fish farmers associations;
- limited relations with the mass media;
- lack of research and development aimed at needs of small-scale breeders;
- poor access to inputs, technology and other institutional services by small farmers;
- weak influence over the price of their products and an overall lack of bargaining power with input suppliers and product buyers;

- lack of land availability for expansion of facilities of association members;
- farmer members are scattered over a wide geographic area;
- overall sector weakness reflected by the absence of a dedicated Division in the government to address multifaceted problems faced by small scale fish farmers and their associations;
- lack of research and development aimed at needs of small-scale farmers; and
- poor access to inputs, technology and other institutional services by small farmers.

Opportunities

Critical objectives for an association are to represent its members and their legal interests, to support activity and actions that improves the welfare and business interests of members, to develop activities that improve the policy and legislative environment in which members operate, and more broadly to facilitate improvements that benefit the aquaculture sector, or sub-sector represented. In Asia, the socially-oriented mission of an association would include member welfare, increasing employment opportunities and food security in rural areas.

In this context there are several opportunities that exist which can support such activity. Those cited in the case study reports include associations;

- working with government, on policy making and programme planning;
- providing a voice of small farmers in policy making;
- facilitating access to credit on favorable terms;
- facilitating technology transfer and acting as an extension agent for members through organized training and capacity building for member;
- facilitating access for farmers to government, academic institutions, NGOs and input providers' services;
- facilitating linkages with international technical and donor agencies;
- facilitating interactions with other national associations and improving exchange of knowledge and technology with other countries, and seeking donor support to strengthen capacity;
- organizing members for collective management of risks, input acquisition, product value addition, product development, branding and marketing;
- undertaking collective bargaining on behalf of members;
- developing legal protections for members;
- providing production, processing and marketing of products to members, facilitating access to global value chains, and improving the capacity of members to comply with necessary product standards; and
- encouraging members' participation in local and international activities that enhance their knowledge and skills in production and marketing, improve their knowledge of the trends in the industry, through for example, access to trade fairs and exhibitions.

Threats

The significant threats to the viability and effectiveness of associations include onerous government regulations, propensity of government to interfere in the management of the association, unpredictability of government policy, and the tendency of a few rich and powerful farmers to influence the association for their interests and to capture benefits. Failure to retain membership is an ever-present threat to associations.

As with the weaknesses, most other threats are those that impinge on the viability of farmers and individual enterprises, such as the following:

- Lack of technical support and a weak extension service
- High production costs
- High cost of credit, interest rates and unfavorable repayment schedules
- Government bureaucracy, complex procedures and corruption

- Potential competition with private sector enterprises
- Potential competition with non-government organizations
- Existence of a large-scale producer/exporter monopoly, which is difficult to overcome by small-scale producers' associations.
- Flooding local market with high demand varieties, depressing local market prices.
- Lack of knowledge in price variations for different varieties of (ornamental) fish.
- Decline in competitiveness in the global markets
- Lack of inter-association relations at the district level.
- Inability to retain membership.
- High annual fee for the issue of farmer's license
- Passive or inactive or overworked officers. Use of retired, part-time, concurrent-working staff. Advanced age or poor health or part-time concurrent-working staff are unable to fully devote their efforts and time for the association. This could result in associations falling behind in their work programme and especially in keeping abreast with new global trends and developments in the industry.
- High requirements from international markets on aquaculture products. These can be difficult and costly for members to meet. While this is an opportunity for the association to develop the capacity of members to comply with certification standards, it requires officers who are up to date with developments in trade and technology and can devote full attention to the association.

Factors associated with the three desired attributes of the associations

The summary of factors associated with the three desired attributes (strong, empowered and sustainable) provides qualitative descriptions based on the SWOT analyses, their expressed linkages and interaction from the various stakeholders contacted during case study activity, impacted by reported performance and accomplishments of the associations in each country. A complete assessment of factors that contribute to the desired three attributes of associations in each country is presented in Annex 4.

Strong

The common characteristics of strong associations in the case studies are a democratically elected board, democratic and transparent procedures, a dedicated leadership committed to pursuing the associations' objectives and the goal of the industry, an equally dedicated and active membership, a well-articulated mission statement and clear goals that are shared by members, and unambiguous government policies and regulations. In most of the cases the strongest associations are often those with dedicated individuals, with examples coming from Kyrgyz Republic where two key officers of the National Trout Farmers Association of Kyrgyz Republic – the chairman who is elected and the treasurer – serve without remuneration; and the women's club in the Philippines, which has been led by the same president, a retired civil servant who is 77 years old, since its foundation.

The associations draw strength from being recognized by and represented in government policy decisions and from their interactions with the science and technology sector, government and private industry service providers, and the mass media. Capacity-building programmes from government and the research and development sector, as well as from NGOs, are crucial to the development of the knowledge and skills of members, which can enhance the viability of the association. A crucial capacity is the professionalization of the association, particularly its leaders and members and in its management.

Empowered

There is a saying which goes "it only counts if it works and it only works if it counts" and assuring that Associations both work and count is a vital issue in the management

and development of aquaculture (Hough and Bueno, 2003). The Sri Lankan case report offers an interesting perspective for assessing empowerment attributes, whereby the authors contend that an empowered association invariably becomes strong and sustainable. The suggested five modes of empowerment relate to finance, infrastructure, education, and socio-economic and political empowerment. Whilst these can happen at a local level, through a localized association, the Bangladesh and Sri Lankan case study highlight the importance of a national or apex association. Before 2015, Bangladesh had no national association of fish farmers and fish hatchery owners. District or sub-district level associations have been formed but have mostly lapsed into inactivity, with a few exceptions. Their contribution to the industry's development has been confined to a few local economies, while their national impact, in leading policies development for example, has been insignificant. A national association can fill this gap. The Philippine case study of a rural improvement club of women farmers highlights the importance of being recognized (including being helped by mass media coverage) for excellence or remarkable achievements. It has become a model association in the community and is a role model for other organized groups in the region, having received several awards of recognition for their exemplary achievements. In the Viet Nam case, empowerment is endowed by its having been established by the Peoples Committee and working closely with government fisheries agencies and having close links with research and development institutions in the province, particularly the Research Institute of Aquaculture No. 3, Institute of Oceanography and Nha Trang University. Kyrgyz Republic's trout farmers association showed its influence by encouraging and gaining support from government agencies to formally recognize aquaculture as an agricultural activity, such that imported inputs including feed and seed are exempt from importation taxes. It has also organized training for members, promoted good management practices, and brings in experts to the country to assist in training and technology transfers. These actions have empowered the association to drive change within the trout industry in Kyrgyz Republic.

Sustainable

Efficiency and stability are the essential requirements for achieving organizational goals. If these requirements were not satisfied, planning and implementation of effective actions could be difficult. The cases studies confirm two requisites of stability: adequate financial resources and continuing commitment of members. Associations can exist for a long time but being long-lived might be its only achievement and this ultimately is unsustainable for an association. None of the cases exhibit such total organizational stasis, but a case in point is the Khan Hoa fisheries Association in Viet Nam. Although relatively strong, and empowered, its long-term sustainability is questioned because of the large heterogeneity of its membership, which makes it difficult to develop a strategy or execute a project that is relevant to the diverse needs and interests of the four kinds of members i.e. fishers, fish farmers, hatchery operators and seafood processors. There is therefore a stasis in activity, which means member are present in name only, with limited activity by members in achieving association goals. As a general association, and not a species-specific or sub-sector specific association it has difficulties in achieving its primary functions and maintaining satisfaction among its members

PART IV: CONCLUSIONS, LESSONS AND RECOMMENDATIONS

Conclusions

This section is largely adopted from the concluding statement following the presentation of case studies and synthesis, and discussions held at the regional workshop in Bangladesh (see Section C: Report of the Regional Workshop)

The case study activity covered two areas of action; (1) how to organize small farmers' associations (whether informally such as clusters, or more formally) with economy, efficiency and speed; and (2) how to enable the organizations to be strong, empowered and sustainable.

The primary enabling environment for associations is the policy environment. Policies and regulations need to be inclusive and not biased towards a particular scale of farming or group of farmers. In countries where small farmers predominate, there is a need to re-evaluate and, if necessary, amend policies to give small farmers and the small farmer organizations a head start. Rules and regulations should be simplified. Registration procedures, generally found to be cumbersome, need to be streamlined.

There will be some differences in policy support at local, provincial or divisional or state, and the national levels. In this regard, as the cases point out, the policy advocacy of associations, through partnership and cooperation with government, can be done at the different levels as well. The local associations work with the local government and a national or apex organization works with the national government, and by communicating effectively with each other will improve overall policy and implementation. It is desirable to form an apex organization (a federation of associations or a national association) to represent the interests of the entire aquaculture production sector, even where other associated industries (e.g. input supplier, processing, and exporting components of an aquaculture industry) may have their own, separate associations. Caution should be exercised, however, so that national associations do not proliferate and compete for attention and resources. Should there be more than one, a mechanism for cooperation should be worked out among them. This applies as well to local associations, which should be networked. Networking among associations and between associations and other stakeholders – state agencies, non-government organizations, private industry sector, science and technology, the mass media, and regional and international assistance organizations – goes a long way to imparting strength and empowerment. The Philippine case study shows the positive effects of networking with other institutional stakeholders and having good working relations with the mass media.

Sustaining associations is always a challenge and requires a two-pronged endeavor. Government should endeavor to provide the necessary assistance and incentives for associations to remain active, and to sustain their interest in and guidance to the associations. For their part, associations should endeavor to remain viable with an active membership and sufficient resources. Membership fees are a basic source of funding, but an association should try to earn additional revenue from other worthwhile activities and, preferably, establish a revolving fund, that can be used to support members at times of difficulty, but invariably works to providing financial stability for the association. A cautionary note related to sustainability is avoiding the pitfall of having a few large, wealthy and usually powerful members dominate the organization to advance their own agenda and interests over those of the rest of the members. Another pitfall is a heterogeneous membership with diverse interests that could be extremely difficult to reconcile in a strategic plan. Weaker, or more passive, members soon lose interest and drop out; setting the stage for the potential unraveling of the organization.

An active membership is one that takes pride in being part of the association, finds the association's action plans challenging and beneficial, and is inspired by its mission and values. These intangible factors – relating to a sense of belonging and opportunity – are a function of a tangible constitution and by-laws, an agreed and shared statement of mission and goals, a code of conduct, good leadership and management. In large measure, putting these in place is the responsibility of the organization's leadership. Which brings to the fore a crucial attribute in successful organizations; professionalization. Capacity building programmes for associations should give this attribute high priority.

Professionally run associations adopt democratic procedures in choosing their board, making decisions, managing funds and other resources, and formulating strategies and action plans that benefit members and the wider community. They are credible and worthy of the trust given by the other stakeholders. Their legal license is effectively bolstered by the social license to operate endowed on them by society.

There are global influences for which small farmers and their associations need plenty of assistance, so they can understand the dynamics of these influences and learn the skills to deal with them. Trade embodies these influences; producers must comply with a host of trade requirements from product quality to food safety and social and environmental responsibility. The technical assistance should thus improve their capacity to comply with the required standards. In so doing they are not only able to access the market but become a more productive and responsible producer and gain greater power for transaction.

Lessons

Two sets of lessons are distilled from the case studies undertaken, related to (1) the benefits and advantages of being associated, for members, the wider aquaculture industry and society as a whole; and (2) the pitfalls that can beset associations. The first affirms that the benefits can only be enjoyed if the association works to its strengths, overcomes its weaknesses, actively pursues the opportunities presented, and deals, where possible, with the threats; and one that is sufficiently strong, empowered and sustainable. The second is a sober reminder against complacency, taking short cuts and applying tempting convenience over correct ways of operating an association.

Benefits and advantages of being associated:

- effective representation in government policy making and programme planning; a platform for drawing government's attention to the potential, as well as concerns, of a commodity industry (i.e. trout farming, ornamental fish farming, milkfish farming, fish seed and aqua feed production, and so on);
- platform for discussion of industry issues between farmers and government, science and technology, and industry service providers;
- platform for working together as partners with government, in formulation of policy for the commodity industry or more broadly the aquaculture sector.
- performs checks on members' compliance with legislation and adherence to standards;
- leverage for equitable transaction with input suppliers and product buyers; facilitates organized marketing and bulk purchase.
- enables affordable participation for small farmers in local and export markets;
- enables access for small farmers to the wider value chain, where the benefits of value addition and effective marketing can lead to better profitability;
- facilitates the development of viable and robust economic production models to ensure the long-term financial stability of the small farmers;
- facilitates capacity building programmes for members;
- increases efficiency and reduces cost to government and service providers of providing extension, financial and other services to farmers;
- leverage for attracting technical assistance, financial assistance and subsidies from assistance organizations and government;
- facilitates adoption and sharing of technology, exchange of experiences and lessons among members and with other associations; and
- pools intellectual and otherwise limited material resources of individual members into an effective and more massive resource for everyone's benefit.

Potential pitfalls for associations

- In an association with large and small-scale farmer members, the larger and usually more powerful members tend to dominate and advance their own interests, and equality of opportunity becomes more difficult to achieve; although powerful dedicated individuals with altruistic intentions can also benefit an association.
- Government interference in management of the association, such as in the choice of its leader or board members, can negatively impact its ability to function effectively on behalf of members.
- Government's tendency to co-opt the association for political ends may only provide short term gains for an association.
- Tendency of the association to be over-dependent on government subsidy for its operation limits long-term sustainability and financial security.
- Recruiting too many members, for the sake of numbers and potential revenue from membership fees, without screening for diligence and commitment can increase administrative burden without any direct benefits in operation of the association.
- Factionalism within an association can lead to in-fighting and reduce ability to look outward towards positive capacity-building and development (of the association and industry in general).
- Waning or loss of interest by members can stem from a lack of relevant and challenging objectives and activities.
- Designation of part-time managers or members of the board who have concurrent jobs in other agencies may reduce the devotion of sufficient time and attention to the association.
- Heterogeneity in membership makes it difficult to develop a programme or projects that all members would find relevant to their interests. Catering to heterogeneous interests lacks focus and could prove expensive.
- An association is not one person, and while longevity and dedication in an association role (e.g. leader) can provide stability and a source of strength, failure to develop the experience and skills in future leaders of an organization can negatively impact an association's progress. The current leadership in associations should attend to the need for a well-trained base of persons for future leadership roles.

Recommendations

Policy and action-oriented recommendations were generated through stakeholder discussions and country-based workshops in each of the case studies; the former directed towards government, and the latter towards the associations.

The case reports propose policies and actions that respond to a combination of strategic and generic needs, and those that are specific to the context of the case associations evaluated. The recommendations that stand out for their high relevance to the three attributes of strength, empowerment and sustainability were (i) professionalization of the association, (ii) constant improvement of the technical capacity of members, and (iii) development of a cluster mode of cooperation among members and their operating as a business enterprise.

Professionalization of the association is targeted at these specific aspects:

- training of leaders, board members, and all members in leadership and management skills;
- corollary to the above is a scheme for leadership succession by developing future leaders through, among other ways, training and mentoring;
- improvement of officers and members' ability for strategic planning, organizational development, and financial management;

- Development of a strategic communications and information system for internal communications among members and for stakeholder relations. For the latter, an active interaction with the mass media helps publicize achievements and draws attention to current and planned activities.
- Development of an information system for collection, processing and dissemination of industry/sector data, such as production statistics and trends, status of the resources for production, and the market, to support directed operational initiatives.
- establishment of a well-equipped and well-managed office, that makes for an efficient operation and projects a professional and credible image; and
- setting standards of behavior and adhering to them to earn trust of stakeholders and gain the social license to operate, which is as important as a legal license.

Constant improvement of management and technical expertise of members is needed especially on awareness and application of innovations in products and processes, risk management, and farm enterprise planning and management.

A cluster mode of operation by members is recommended, through collective endeavors, to take advantage of the various expertise and resources in an association and between associations; to build competitive advantage, improve production efficiencies, reduce costs, and facilitate adoption of better management practices. The cluster should operate as a business entity, even where a cluster could be, by itself, an informal organization of farmers. As the Bangladesh study focuses on the formation of farm clusters (see Section C: Report of the Regional Workshop), hence a cluster offers numerous advantages to small farmers of the country. Effective branding of an association helps establish backward and forward linkages with all stakeholders in the value chain; facilitates sharing of information on innovative practices and risk management; helps small farmers address the social and financial risks associated with small-scale farming; improves access to credit and other inputs as well as to product markets; and facilitates the development of a credible traceability system.

Other recommendations are:

- a regional initiative to intensify empowerment of small farmers organizations;
- Government support to small holders to acquire the capacity to actively participate in regional and global seafood production and trade initiatives;
- strong support for the empowerment of women in fisheries and aquaculture;
- The relevant government authority should work at strengthening and empowering the farmer associations and include in its agenda the associations' action plans.
- A national association should be represented in departmental and ministry level meetings, project planning workshops of the fishery agency, research organizations and universities.
- The authority should assist the associations in establishing international relations through activities such as hosting and taking part in international seminars, regional or global projects, and forums and dialogues.
- Create a separate and dedicated division in the authority overseeing aquaculture to service the needs of specific aquaculture commodity producers, such as ornamental fish farmers.
- All Associations, regardless of stature, should be registered under the appropriate government agency.
- An association that starts with a voluntary set of officers should, as soon as financially feasible, elect and establish a remuneration scheme for the officers.
- Draft a policy document to be addressed by government on production of ornamental fish and aquatic plants for the export trade.
- Provincial Council's financial assistance schemes to be channeled through other commercial banks such as Grameen Bank of Bangladesh and Sanasa Development Bank of Sri Lanka.

- Negotiate with the Treasury to impose zero taxation on imported fish feeds for the (ornamental) fish industry.
- The roles and responsibilities of associations in revised Fisheries Laws need to be updated, revised to meet the requirements for international standards.
- A financial mechanism should be opened for associations to enable them to establish a regular source of revenue to support their activities.
- To develop a fisheries association, participation from other stakeholders in the value chain such as processing, exporting companies, wholesalers, retailers, should be promoted. Policies need to create incentives (credit, lower taxes, etc.) to encourage their participation in associations' activities.
- Organize aquaculture associations around specific species or a commodity industry to promote linkages between stakeholders along the market chain. Now, the fisheries associations (in Khan Hoa Province) are just a big group covering a wide range of fisheries activities (e.g. fishing and fishery resource, aquaculture, hatchery, processing, etc.) with many members.

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ANNEXES

ANNEX 1

Indicators of strength, empowerment and sustainability

For this study, three indicators were used to determine whether an association is successful, namely strength, empowerment and sustainability. Each attribute has several indicators, illustrated below.

1. Strong

- number of active members;
- a democratically elected Board or set of officers;
- the existence of an association charter (constitution) and by-laws;
- the association's vision, mission statement, objectives and values, and members' adherence to them;
- democratic processes, including one member-one vote, consultations among members, decision making processes;
- capacity building programmes (professionalization, technical training for officers and members);
- number of board meetings a year and a general assembly meeting;
- coverage (in terms of area and number of members of the association);
- transparency and accountability;
- trust, satisfaction and reciprocity among the members and leaders; and
- adherence to rules, norms of behavior and traditions of the association.

2. Empowered

- official linkages with relevant government agencies (policy, regulatory, extension);
- institutional relations with science and technology institutions (academic, research, technology);
- presence in and coverage by mass-media – television, community radio, newspapers and magazines; participation in special events (fish migration day, world wetland day, fish weeks and at policy dialogue workshops);
- relations with input providers and product buyers;
- technical exchanges among members;
- organized activities among members such as purchase of inputs, marketing of products, and so on;
- organized activities to promote products of members;
- organized activities to facilitate credit on favorable terms and conditions;
- farmer visits in other regions of the country or neighboring countries;
- organized activities to discuss and resolve policy, technical and capacity building issues;
- Success stories (e.g. deals the association has successfully negotiated); and
- community visibility, recognition and acceptance.

3. Sustainable

- history of operation and highlights of significant accomplishments;
- harmony or absence of conflict among members; absence of factionalism;
- medium (3 years) and long-term organizational development plans and strategies;
- regular membership fees paid by members;

- revenue from other sources;
- financial and physical assets and financial liabilities;
- financial management and transparency and accountability in the allocation, disbursement and use of financial resources;
- annual or biennial meetings to assess and analyze performance and industry trends (production trends, cost-benefit, product quality, market and marketing, competition, threats, etc.) and planning for the future;
- strategy to attract and maintain membership; incentives to members;
- strategy to improve public relations;
- number of meetings, seminars, symposium participation by the association; and
- membership trend.

ANNEX 2

Key Informants and the semi-structured questionnaire

A. KEY INFORMANTS

1. high level officer of fish hatchery owners' association (preferably the president or chair);
2. members of fish hatchery owners' associations (preferably 4 from different regions); and hatchery owners outside the associations (preferably 2);
3. fisheries agency official (preferably the Director or Director General);
4. extension agency or extension unit director or head serving aquaculture;
5. credit institution serving fish hatchery (preferably the head);
6. traders (preferably 2);
7. input suppliers (e.g. hormones, feed, other ingredients) (preferably 2);
8. aquaculture research and development institution (preferably the Director and one researcher);
9. Mass media organizations (newspaper or broadcasting);
10. Consumers (preferably 3); and
11. Non-Government organizations (minimum 1).

B. KEY INFORMATION TO GATHER

- Refer to the Indicators for the essential information required
- Expert views and opinions from key Informants
- Other stakeholders' and perceptions of the association

C. SEMI STRUCTURED KEY INFORMANT SURVEY QUESTIONNAIRE

The following provide a generic list of questions to be asked to key informants in the case study surveys. Generally, the questions vary depending on the key informant type, and these are separated below.

Officers and members of Fisheries Association (FA)/Fish Hatchery Operators Association (FHOA) (separate interviews of officers and of members):

1. How and when FA/FHOA began, when was it registered, and its development through the years, current status, immediate and future plans.
2. Membership – number of members, number of active members, why some are not active, qualification of members, entry and exit rules for members, membership benefits.
3. How are officers selected? Request names and a brief resume of current set of officers (not necessarily written; perhaps concentrate on the president).
4. Request written charter and laws and by laws (constitution).
5. What have been the recent activities that FA/FHOA has taken to strengthen capacity of association; to improve knowledge and skills of members; promote science and technology; promote products; improve public relations, reduce costs of inputs, increase reliability of input supply, etc.? Who were the partners in these activities? What are the plans for doing the same or other activities in the future?
6. What are the real contributions of the FA/FHOA to fish seed sector development?

7. What are the constraints to the Association in terms of sustaining its viability, promoting its objectives, promoting members' economic interests, improving welfare of members and their family? Request examples or illustrative cases.
8. Ask for three very serious threats to FA/FHOA's existence? Why?
9. How does it view its relations with government fisheries agency? Request examples of activities it has done to propose or review, or oppose, or generally influence government policy and programmes. What was or were the outcomes?
10. How does it attract prospective members? How does it keep members? How does it sustain the participation of members? How does it encourage a more active and enthusiastic participation of members?
11. What are the benefits of being a member?
12. How does it maintain good relations with other stakeholders (go to the list one by one – with government, consumers, general public, mass media, suppliers of inputs, traders, Science & Technology institutions?)
13. As an Association does it engage in political activities?
14. Does it lobby for policies, regulations, projects? Examples?
15. Has there been instances when it proposed or opposed policies, rules and regulations, projects relevant to fish hatchery? What were the outcomes?
16. Other than membership fees, what are the other sources of revenue?
17. Request, tactfully, information on assets and liabilities, financial status, and on financial management procedures.
18. Is the association aware of any recently passed laws on fish farming, hatchery, feed or other? Does the association agree with all laws and by-laws or are there any amendments needed?
19. Obtain a copy of the founding charter, laws and by-laws
20. Was there any conflict in the recent past? If so, please explain.
21. Please point out three factors that should be included or done to make the association successful.
22. What you perceive about the association success or failure? Please explain.

High official/s of government fisheries agency

1. What are the specific official linkages between agency and the FA/FHOA?
2. What have been the important contributions of the FA/FHOA to the objectives of the agency? To aquaculture development in general? To other specific matters such as policy formulation, regulations, sector management? Examples or cases.
3. Is it contributing to the above according to the Agency expectations?
4. How does the Agency feel about the FA/FHOA? In which ways it wants to assist the association? Does it include the association in its future planning?
5. Have there been instances when the FA/FHOA was the originator of a policy idea? Or helped in the formulation of a policy or formulation or revision of a regulation? Collaborated in the development of a programme? Opposed or was critical of a government policy, regulation or programme? What were the outcomes?
6. What does the Agency see as very important roles of the FA/FHOA in promoting Fish hatchery and seed quality development and mitigating the numerous risks to fish farming sector?
7. Does the agency have a plan to strengthen its overall linkage with the FA/FHOA in future, How?

Extension agency serving Fish seed sector

1. Does the FA/FHOA actively seek technology, technical advice, training and information from the extension office?
2. What are the outcomes in terms of its overall capacity, the members' knowledge and skills? Members' overall innovativeness?

3. Does the FA/FHOA alert or inform the Agency of production and other technical problems?
4. Does the agency have a plan to strengthen its overall linkage with the FA/FHOA in future, How?
5. Does the agency think FA/ FHOA can be a catalyst for the growth of fish sector? If so how? Does the agency have suggestions to improve the performance of FA/ FHOA?

Science and Technology official/ researchers

1. What is the nature of relation between institution and the FA/FHOA?
2. What are the activities in which FHOA has collaborated with institution?
3. Does the FA/FHOA actively seek collaboration with the institution?
4. Does the FA/FHOA bring up technology issues and problems to the institution?
5. Does the FA/FHOA actively seek scientific and technical advice from the institution?
6. What has the institution done to increase the capacity of the FA/FHOA? To improve the knowledge and skills of members?
7. Does the institute have a plan to strengthen its overall linkage with the FA/ FHOA in future, How?

Input suppliers (feed company or dealer)

1. Any special relations with the FA/FHOA? What is the nature and what are the purposes and outcomes of the relations?
2. Does supplier grant discounts and other benefits to the FA/FHOA and its members?
3. Describe the business relation between input supplier and the FA/FHOA? Is it hard-nosed business relation? Is it based on mutual trust? Or any combination?
4. Does the FHOA buy large amount of inputs on cash or credit?

Input supplier (seed or broodstock)

1. Any special relations with the FA/FHOA? What is the nature and what are the purposes and outcomes of the relations?
2. Does supplier grant discounts and other benefits to the FA/FHOA and its members?
3. Describe the business relation between input supplier and the FA/FHOA? Is it hard-nosed business relation? Is it based on mutual trust? Or any combination?
4. Does it provide technical and other advice to members of FA/FHOA through the Association?

Credit providers (Bank and/or Microfinance institution)

1. Any special relations with the FA/FHOA? What is the nature and what are the purposes and outcomes of the relations?
2. Does the Bank/MFI grant special concessions or other benefits to the members of the Association?
3. Describe the business relation between the Bank/MFI and the FA/FHOA? Is it hard-nosed business relation? Is it based on mutual trust? Or any combination?
4. Does it provide technical, financial or other advice to the FA/FHOA?
5. Does FA/FHOA ever come to Bank/MFI for credit negotiations? If so what was the outcome?

Traders, institutional buyers or wholesalers/ consumers

1. Any special relations with the FA/FHOA? Nature and purpose?
2. What are the benefits of dealing with Associations or members of the Association? Examples?

3. What is the general reputation of the FA/ FHOA and/or its members in terms of product quality, reliability of supply?

Mass media organizations

1. Do you receive media releases from the FA/FHOA? Does it actively seek your assistance in disseminating its activities?
2. Have you been involved in covering and publicizing activities of the FA/FHOA?
3. Have there been negative press about the FA/FHOA? What kind? Did it make any effort to answer, explain, reduce the impact of the negative publicity?
4. What is your general impression of the capacities and reputation of the FA/ FHOA?

NGOs

1. Any special or non-formal relation with FA/FHOA? Describe and explain the nature and purpose of the relation?
2. What are the mutual benefits of the relationship?
3. What is your general impression of the FA/FHOA in terms of its corporate social responsibility? Please explain?
4. Does the institute have a plan to strengthen its relations with the FA/FHOA in future? How?

ANNEX 3

SWOT analyses of the case associations

Bangladesh

The SWOT analysis was applied to fish farmer “associations” in general, rather than to a specific association

| Strengths | Weaknesses |
|---|---|
| <ul style="list-style-type: none"> • Numerous motivated fish farmers and hatchery owners in the country. • Presence of a network of non-government organizations assisting farmers to organize and providing training • The country’s extensive extension network • Momentum of commercial aquaculture development in Bangladesh • Having a written constitution • Government’s enabling policy and institutional environment • Presence of strong national and international organization to support associations (i.e. DoF, MoFL, BFRI, Universities, FAO, World Bank, WorldFish, DANIDA, DFID, and others) • Presence of private industries providing inputs and advice on good practices to organized farmers. | <ul style="list-style-type: none"> • Complex functions and too many and diffused objectives • Management and decision-making remote from members • Inadequate funds, high operational costs • Poor management; weak leadership • Trust issue with association’s leader • Often, the undemocratic selection of the association’s leader • High membership fees • Low credibility and lack of transparency • Very few women members • Farmer members are scattered • Poor links with other associations • Lack of visible incentives to join or remain with association • Lack of offices and assets |
| Opportunities | Threats |
| <ul style="list-style-type: none"> • Work with the government in policy making and programme planning; voice of small farmers in policy making. • Facilitate technology transfer and act as extension agent for members • Facilitate access of farmers to government, academic, NGOs and input providers’ services • Organized management of risks • Organized input acquisition & marketing • Facilitate linkages with international technical and donor agencies • Facilitate interactions with other national associations and exchange of knowledge and technology with other countries • Collective bargaining for members • Can initiate training and capacity building for members; develop model farmers • Seek donor support to strengthen capacity • Provide legal protection for members • Provide production, processing and marketing of products to members • Facilitate access to global value chains | <ul style="list-style-type: none"> • Subject to direct government interference in management • Tendency by the few rich and powerful farmers and politicians to capture the benefits • Government bureaucracy, corruption and complex procedures • Changes in government policy • Potential competition with private sector enterprises • Potential competition with non-government organizations |

Kyrgyz Republic

Trout association

| Strengths | Weaknesses |
|--|---|
| <ul style="list-style-type: none"> • Significant interest in starting fish farming operations • Excellent biophysical environment for trout culture • Government support to the development of associations and collectives • Significant existing infrastructure that can be used to support sector development • Low labor cost | <ul style="list-style-type: none"> • Low technical base among association members and few specialists in the country • High cost of imported inputs especially feed and seed • Lack of support industries • Low domestic demand for fish products • Uncoordinated activities between Government agencies and Associations • Lack of material support from Government agencies • Ambiguous and unclear legislative environment • High investment costs and limited access to capital / funding mechanisms • Monopolies on input supplies resulting in high input costs to small-scale farmers |
| Opportunities | Threats |
| <ul style="list-style-type: none"> • Increases in domestic demand for fish products • Technology transfers to introduce modern and efficient production techniques • Import substitution for input supplies (feed and seed) • Improved processing, value addition and marketing channels • Increase employment in rural areas • Improve feed security in rural areas | <ul style="list-style-type: none"> • Overly onerous government regulations • Lack of technical support and extension systems • High production costs • High cost of credit, interest rates and unfavorable repayment schedules |

Sri Lanka

The SWOT analysis is that of a composite of 23 small scale ornamental fish farmers associations

| Strengths | Weaknesses |
|--|---|
| <ul style="list-style-type: none"> • Presence of a young and enthusiastic group of fish breeders and farmers capable of producing quality and award-winning new varieties of ornamental fish. • Associations are properly constituted, with a Charter, based on the guidelines of the National Fisheries Federation. • Associations have a legal license to operate; registered with NFF and NAQDA. • All Associations are represented in the NFF • All members of Associations are required to obtain a Management License from NAQDA to operate as fish farmers. • Associations have a democratically elected Board (Mandalaya). • Relationships with science and technology institutions such as NAQDA and NARA is reasonably good; mostly for training programs and extension services. • Regular membership fee • Transparency and professionalism in managing Associations' accounts • Monthly board meetings and an annual general assembly meeting to elect new officers and agree on a work plan for the following year. • Members of the Associations have the opportunity to participate in capacity building programs conducted by NAQDA, NARA and Provincial Councils. • Bank loans available to Association members under 'Dheewara Diriya' scheme at subsidized interest rates of 5 percent (of the 9 percent interest charged by Bank of Ceylon, MOFARD pays 4 percent to the Bank. • Availability of 50 percent subsidy to Associations from Provincial Councils for the purchase of farm equipment and accessories. | <ul style="list-style-type: none"> • Linkages with relevant government agencies are limited for small scale ornamental fish farmers. • Lack of interest of large-scale producers with links to exporters to join rural ornamental fish farmers Associations. • Limited relationships with mass media • Lack of medium and long-term development plans for the Associations of small-scale farmers. • Funds of small-scale farmers' associations limited to membership fees paid by the few members. • Lack of research and development aimed at needs of small-scale breeders. • Poor access to inputs, technology and (institutional services by small farmers. • Small scale ornamental fish farmers lack knowledge of selective breeding to produce quality virile brooders. • Absence of a project proposal or business plan and collateral, which precludes farmers from availing of credit facilities. problems do arise when a small farmer applies for a loan; the main problem is the • Banks do not accept rural Associations to act as guarantors for members • Marketing – Small scale farmers and out-grower have weak influence over price of their products for lack of awareness of prevailing world market prices, depressed prices from product glut in local markets and price undercutting, and an overall lack of bargaining power. • Lack of available land for expansion of facilities members. • Overall sector weakness – The absence of a dedicated Division within NAQDA to address multifaceted problems faced by, especially, the small-scale ornamental fish farmers and their associations. |

Sri Lanka (continued)

The SWOT analysis is that of a composite of 23 small scale ornamental fish farmers associations

| Opportunities | Threats |
|--|---|
| <ul style="list-style-type: none"> • Presence of both tropical and cold climatic conditions which are conducive for farming both warm and cold-water ornamental fish species. • Pure and cool waters from mountainous regions flowing into streams and rivers, are ideal for breeding and rearing a wide range of endemic and exotic ornamental fish species and aquatic plants. • An efficient road network connecting to the capital, Colombo, and telecom network and internet facilities. • A highly efficient product handling facility at the Colombo airport to effect exports with the least delay. • Technical assistance and capacity building programs available from NAQDA/NARA. • Financial assistance from SLEDB to exporters and potential exporters, breeders/farmers to participate at international trade fairs. • Opportunity to participate at 'Min Visithuru' ornamental and aquatic plants Exhibition organized annually by NAQDA. Enables breeders and producers to meet exporters and other traders. • Availability of financial grants from SLEDB for small-scale farmers that are members of association members. • Presence of a fairly large producer base to meet the export market. • Existence of training and research institutes to assist small scale producers/breeders. • A growing world demand for freshwater ornamental fish and aquatic plants. | <ul style="list-style-type: none"> • Presence of a large-scale producer/exporter monopoly, which is difficult to overcome by small scale producer of Associations. • Large producers flooding local market with high-demand varieties, depressing prices. • Lack of knowledge in price variations of different varieties of ornamental fish. • Decline in competitiveness in the global market from lack of new varieties. • Lack of inter-association relations at the district level. • Progressive reduction in membership of small-scale ornamental fish farmers Associations; inability to retain membership. • High annual fee charged by NAQDA for the issue of Aquaculture Management License, made compulsory for all aquaculture ventures. |

The Philippines

Women's milkfish farmers' association in the Province of Pangasinan, the Philippines

| Strengths | Weaknesses |
|---|--|
| <ul style="list-style-type: none"> • Laws on the empowerment of women and small farmers' organizations. • A functional organizational structure with duly elected and competent officers • Well organized enterprises with qualified skillful workers and well-trained utility helpers. • Clear mission: to produce quality food products that pass national standards • Adhering to the core values of Benevolence, Resilience, Integrity and Credibility. • Moral support from family and community • Support from the Local Government Unit • Training, technical support and partnership with Fisheries agency • Accreditation and technical support from the trade and industry office • Research and development support from local university • Access to national research institution • TESDA competency assessment and certification on food processing • Ability to repay loans | <ul style="list-style-type: none"> • Limited production capacity to meet increasing products demand • Limited financial resources for expansion • BFAD, HACCP and FDA accreditations as pre-requisite for exportation. • Limited capacity to participate in international agriculture and food products exhibitions • Insufficient qualification in the global food manufacturers and exporters association • Inactive members and inconsistent commitment of some members |

The Philippines (continued)

Women's milkfish farmers' association in the Province of Pangasinan, the Philippines

| Opportunities | Threats |
|---|---|
| <ul style="list-style-type: none"> • Access, engagement and participation in livelihood initiatives • Membership in the national and local food manufacturers and traders' association • Market expansion • Passion, interests and challenge to innovate • Regular participation in the local and national agri-business exhibition • Linkages to relevant government and private stakeholders • Upgrading fish processing skill and improvement of product labelling and packaging • Extra income for rural women for their labor • Income from fish processing help sustain aquaculture project • Role model for other women to engage in food processing opportunities | <ul style="list-style-type: none"> • Strict requirements and compliance for exportation of food products. • Climate change effect on raw materials availability and product quality; extreme weather events affecting quantity and quality of production. • Non-payment of loans or dues. • Member's non-remittance of consignment sales. • Inconsistent production of natural food affecting milkfish growth • Concern on salmonella in fish and fishery product |

Viet Nam

Analysis was applied to one provincial and three district fisheries associations

| Strengths | Weaknesses |
|---|--|
| <ul style="list-style-type: none"> • High potential to develop cage and pond farming and hatcheries. Khanh Hoa Province is a leading fish seed producer of several marine species. • Multi-participation from stakeholders. As voluntary organization, fisheries associations include many stakeholders such as fish farmers, local scientists, researchers, fisheries managers. Recently, stakeholders from industries (processing & exporting or fish-meal companies) became interested in this activity. Traceability of seafood products has become more important leading to a close linkage among actors in seafood supply chain. • A large number of Members. Every aquaculture farmer within a District becomes a member once Approval Letter is obtained from commune's association. • Fisheries Associations have good access to research institutes, universities, fisheries extension office, processing companies, feed suppliers, and other service providers • Strong regional and international co-operation. There are many leading fishery research institutions in Nha Trang City such as Research Institute for Aquaculture #3, Nha Trang University, Institute of Oceanography. In addition, Khanh Hoa Fisheries Association collaborates with Aquaculture Department of the South-East Asia Fisheries Development Centre (SEAFDEC/AQD) in the Philippines, Japanese Trust Funds (JTFs), Japan International Cooperation Agency (JICA). • High economic fish species. There are many high value fish species farmed in Khanh Hoa Province. • Support and guidance from Government. Fisheries associations in Khanh Hoa Province receive a small fund from the Provincial Peoples Committee or District Peoples Committees for their annual Meetings and office facilities. They also receive technical support and policy guidance from Directorate of Fisheries and information on new regulations and training in new technologies. | <ul style="list-style-type: none"> • Lack of or unsustainable financial resources. Most of the small-scale aquaculture association in Khanh Hoa Province do not have sustainable financial sources. Their finances are partly supported by the local Peoples Committee for activities. Other sources are local projects which are not regular or reliable. • Lack of infrastructure. Due to poor financial resources, infrastructure at Fishery Associations in Khanh Hoa is very poor. Only Khanh Hoa Fisheries Association, a top organization, was providing a working office and few equipment, while the Cam Ranh, Ninh Hoa and Van Ninh associations (at District level) do not have proper offices and have to rent, share or use temporary office in the People Committee building. • Lack of professional staff. Fisheries Associations in Khanh Hoa Province lack professional staff. Most of the staff working for fisheries associations are retired or concurrently working. This is also caused by its limited fund. These associations do not have enough budget to hire skilled staff and experts. • Poor linkages between associations with other bodies. Associations have not developed their role as a "bridge" to connect relevant stakeholders. • Many inactive members. Even though associations have a large number of members, mostly fish farmers, active members are few. Many registers as member then do little or nothing after that and do not attend meetings. • Operate as "Semi-Government" organization instead as an NGO. Fisheries associations in Khanh Hoa Province operate as "Semi-Government" organizations, because they receive partial funding from Government. Work plans are implemented passively, and one reason is most of their staff are retired or concurrently working in local Government offices, so they have little time to work with the association. |

Viet Nam (continued)

Analysis was applied to one provincial and three district fisheries associations

| Opportunities | Threats |
|---|---|
| <ul style="list-style-type: none"> • Khanh Hoa Province aspires to become a Hatchery Centre of South-Central region. Khanh Hoa. The Directorate of Fisheries has a plan for hatcheries along Khanh Hoa coast will be re-arranged and modernized. This is a good opportunity for association's members to improve their hatcheries. • Free Trade Agreements (FTAs). As Viet Nam has negotiated and signed many FTAs, these are both opportunities and challenges to associations. The opportunity is better access to global markets. The challenge is to comply with global product standards, which associations could facilitate for their members through training and other capacity building activities. • Developing eco-products and branding. Members of fisheries associations in Khanh Hoa Province have been developing eco-products and their brands. One of the recognized products is seaweed (sea grapes) now exported in fresh and salted form to Japan, Korea, United States of America and Taiwan Province of China. | <ul style="list-style-type: none"> • Passive or inactive or overworked officers. Use of retired, part-time, concurrent-working staff. Advanced age or poor health or part-time concurrent-working staff are unable to fully devote their efforts and time for the association. This could result in associations falling behind in their work programme and especially in keeping abreast with new global trends and developments in the industry. • High requirements from international markets on aquaculture products. These can be difficult and costly for members to meet. While this is an opportunity for the association to develop the capacity of members to comply with certification standards, it requires officers who are up to date with developments in trade and technology and can devote full attention to the association. |

ANNEX 4

Factors associated with the observed attributes of the case associations

| Strengths | |
|-----------------|--|
| Bangladesh | <ul style="list-style-type: none"> • The Jessore District Fish Hatchery Owners Association (JDFHOA) has 35 registered members. • Its Executive Committee (EC) is composed of the President, 3 Vice-Presidents, a General Secretary, 2 Joint Secretaries, Organizing Secretary, Publication Secretary, Cultural Secretary, Office Secretary, Finance Secretary, and Members (9) and elected by the vote of the members. • It has a well-equipped office. |
| Kyrgyz Republic | <ul style="list-style-type: none"> • A leadership dedicated to pursuing a collective goal for the industry. • The National Trout Association is run on a voluntary basis with the elected chairman and treasurer taking no salary. |
| The Philippines | <ul style="list-style-type: none"> • Government support and guidance in the formation and initial operations of the club. The local community council through the municipal agriculture office and the province's rural improvement club assisted in the formation of BRIC and election of officers from the 15 pioneering members. • Participation in capacity building programs like technical trainings of officers and members and professionalization initiatives. • The association has expanded over the years from 15 original members to 120 current members. Most of the members are resident of the village where the club is located, the others from two neighboring communities. • Transparency and accountability have been the norm in the management of the Club. Income statements, production reports, tax payments and income distribution are accounted for and audited yearly. • The members' passion, interests and challenge to innovate in preparing quality food for the family has given them the personal impetus to succeed in the milkfish processing enterprise. |
| Sri Lanka | <ul style="list-style-type: none"> • A strong charter or constitution based on the guidelines of the National Fisheries Federation. • Clear and shared statements of Vision, Mission and Objectives. • Clean and transparent financial management; accountability. • transparent accounting procedures; independent auditor; budget reported to members every month. • Democratic procedures with members of the Board democratically elected. • Rural associations are represented at the district level and the national level i.e. in the National Fisheries Federation. • Access to mass media; coverage of association events. • Availability of capacity building programmes from NAQDA/NARA. • Adherence to Association rules and regulations, norms of behavior and traditions. |
| Viet Nam | <ul style="list-style-type: none"> • Associations are established under a Government Decree. • A large membership; even though not everyone is active, each association has hundreds of members. • Associations have an elected Executive Board that meets regularly. |

| Empowerment | |
|-----------------|--|
| Bangladesh | <ul style="list-style-type: none"> • The association is well known and has a good reputation: the fish farmers of Jessore and other districts believe that members of the hatchery association produce better quality fish seed. Fish farmers and fish hatchery owners buy seed from the association members and seek their advice on good fish farming and hatchery techniques. • The members also maintain good relations with the input suppliers. Relying on the association's reputable "brand" name, members' businesses have prospered. • On the other hand, being a small local association, its impacts on national policies and programmes for the industry have been insignificant. |
| Kyrgyz Republic | <ul style="list-style-type: none"> • The empowerment of the National Trout Farmers Association is derived from the members' (34) unity of purpose: it was established as a vehicle to raise issues related to trout culture in the country, and to lobby the Ministry of Agriculture, Food Industries and Melioration to provide a more enabling environment to promote sector development. The indications of its empowerment are: • Moved to have aquaculture formally recognized by government agencies as an agricultural activity such that imported inputs including feed and seed are exempt from taxes on imports. • Organizes training to members, promotes good management practices, and brings experts to the country to assist in training and technology transfers. |
| The Philippines | <ul style="list-style-type: none"> • Registrations, certifications, and legal license are standard operating procedures followed by the association. • Official linkages and partnership with government agencies directly related to the activities of the association including certifications and regular consultations are sustained. • Presence in the mass media: presented as success story on the role of women in food production, economic development and nation building. • Close collaboration and consultations with the College of Fisheries, Pangasinan State University (PSU) and the National Integrated Fisheries Technology Development Center, Bureau of Fisheries and Aquatic Resources (BFAR-NIFTDC) on research and development interest. The regional fisheries office assists the club on water quality, fish disease prevention and milkfish aquaculture technology. • Good relations with traders which earn them favourable terms. • Frequent invitation and participation in the agri-business expositions and trade promotions. |
| Sri Lanka | <p>Financial Empowerment:</p> <ul style="list-style-type: none"> • A weak revolving fund base • Little or no access to financial resources to expand and run enterprise. • High collateral for the provision of development loans • Micro credit for SMEs; subsidized interest rates available with 2 government sureties <p>Infrastructural Empowerment:</p> <ul style="list-style-type: none"> • Availability of efficient road and rail network, telecommunications and internet facilities • Efficient handling of export products • High cost of electricity <p>Educational Empowerment</p> <ul style="list-style-type: none"> • Weak extension from NAQDA (diluted with extension activities for the food fish sector, which is given a higher priority) • Availability of training at an informal level from NAQDA/NARA • Availability of vocational training from other agencies • Availability and use of information and communication technology (utilized less by small scale ornamental fish farmers due to lack of knowledge) <p>Socio-Economic Empowerment</p> <ul style="list-style-type: none"> • 'Cluster' based production for small scale ornamental fish breeders/farmers and out growers needed – regular supply of product, innovative approach to production • Organized access to markets needed - competitiveness • 'Clustering' of breeder/farmers and out growers of all the SOFB/FAs within a district, could provide a platform for creating innovation. Instead of all farmers producing all varieties of fish needed by the export/local trade, the fish in demand in overseas/local markets could be divided among the fish farmers in a 'cluster', thereby ensuring the production of adequate quantities of each variety in demand to be supplied to the exporters or their agents. |
| Viet Nam | <ul style="list-style-type: none"> • Associations are established under a Government Decree. • A large membership; even though not everyone is active, each association has hundreds of members. • Associations have an elected Executive Board that meets regularly. |

| Empowerment | |
|-----------------------|--|
| Sri Lanka | <p>Political Empowerment</p> <ul style="list-style-type: none"> • A new National Policy for the sector needed. • Policy consistency, political stability and political will very much needed. <p>Institutional Empowerment.</p> <ul style="list-style-type: none"> • Legal license to operate as an Association. • Official linkages with relevant government agencies. • Access to government agencies, technical service providers and input providers. • An institutional framework to foster the development of SMEs (SOFB/FAs) • The need for an agency for the provision of micro credit for small and medium scale enterprises with responsibilities to provide support especially, to small scale ornamental fish farmers in areas such as, 1) training (financial/administrative/ICT), 2) creation of favorable market conditions, 3) procurement, supply and distribution of local and imported machinery and raw materials , and 4) provision of institutional credit facilities, as well as harnessing activities of relevant agencies associated with SMEs development. • Availability of linkages with the mass media, especially TV, radio and newspapers for publicizing certain events such as ornamental fish exhibitions held as awareness programs (utilized by the very active associations. e.g. Puttalam Ornamental Fish and Aquatic Plants Rural Fisheries Association). <p>What makes them less empowered (in addition to what are needed but lacking as mentioned above)</p> <ul style="list-style-type: none"> • Associations unlike in the food fish sector lack sufficient revolving fund to generate own activities. • Relationships with input providers and buyers forged not on an association basis but on an individual or personal level. • Organized activities to promote products of members are lacking (except in a few associations such as the Puttalam Ornamental Fish and Aquatic Plants Rural Fisheries Association). • No organized activities to facilitate credit facilities from Banks. • Irregular cases of farmer visits to other regions within the country, where successful ornamental fish farming activities are being carried out. • No organized activities to discuss and resolve policy, technology and capacity building issues. |
| Viet Nam | <ul style="list-style-type: none"> • All associations in Khanh Hoa Province were established by the Peoples Committees at different levels. Most of these associations are in Governmental offices and working closely with Government fisheries agencies (Aquaculture Department or Agriculture Department). • Representatives participate in relevant events including meetings, trainings, workshops. • Besides, supporting their members, a very good relationship with Research Institutes has been developed such as with RIA3, NTU and IO, as well as SEAFDEC. • Forums are organized to connect stakeholders such as fish-feed providers, fishers, farmers and processors. • Open dialogues among government officers, scientists, aquaculture entrepreneurs organized to agree on “best solutions” to issues of aquaculture development in Khanh Hoa Province. |
| Sustainability | |
| Bangladesh | <ul style="list-style-type: none"> • The JDHOA’s annual membership fee is Bangladesh Taka (BDT) 5 000. As of 2016, it had more than one million BDT in its account. The savings is growing each year, primarily from the membership fees. |
| Kyrgyz Republic | <ul style="list-style-type: none"> • Government’s formal recognition as a Producer Association. • Sustainability depends upon the continued participation of a few key members and herein lies the threat to the association’s sustainability. • At present there is minimal financial support from the members; most of the activities are financially supported by just one or two members. This, too, can be threaten the sustainability of the association. |

| Sustainability | |
|-----------------|---|
| The Philippines | <ul style="list-style-type: none"> • The Club has been in operation since 1989-present. Operation of the association has significantly improved due to innovative practices in the milkfish processing and good management strategies. • Teamwork and cooperation among majority of members. • The membership trends from 15 to 50 to 85 into 120 concurrent membership (118 females + 2 males) indicates sustained interest in the association. However, only 85 of the members are active, the other 35 do not actively participate although they continue to be members. • Financial assets: derived from regular membership fees and revenue (which is subject to tax) from the farming and processing ventures. • Financial allocation, disbursement and use are accounted, audited and published yearly. Financial management including income distribution are discussed among members during annual meeting or when necessary. • The associations mission to improve the quality of local food-fish products and meet domestic market demand and seek membership in the national and global food manufacturer/exporters association. The association envisions to generate employment and investment opportunities. • Improvement processes and upgrade of facilities to comply with strict product quality demand. |
| Sri Lanka | <ul style="list-style-type: none"> • All the SOFB/FAs interviewed answered positively to nearly 50 percent of the criteria listed under 'sustainable'. However, some of the more important factors associated with sustainability are lacking in most associations, namely, 1) a medium and long-term development plan and strategy, 2) revenue from other sources, 3) financial assets and 4) strategy to attract and maintain membership through provision of incentives, were found to be lacking. These shortcomings are directly related to the six instruments of empowerment described above, meaning that if the SOFB/FAs were empowered these shortcomings would be overcome to ensure the sustainability of the associations. • Ability of the Board to retain membership. SOFB/FAs have to function as SMEs by ensuring that its members act and function as the employees of a SME. This entails that SOFB/FAs have to think beyond just being an association, conducting monthly meetings and culminating in the annual general meeting with election of new office bearers for the following year. • Skills development of members in ICT, financial literacy, (a key factor in sustainability of SMEs) project proposal preparation, business plan development. • Skills in the preparation of short, medium and long-term development plans for the association. • Government policy on organizing SOFB/FAs into cooperatives at the district level, provision of technical training in several areas such as genetic improvement of brood stock, fish feed preparation, fish, disease prevention and treatment etc., provision of opportunity an assistance for associations to attend international trade fairs, facilitation of procurement, supply and distribution of local and imported machinery and raw materials, and institutional credit. • it must function as an enterprise, where each member is expected to perform a specific role (under the 'Cluster' concept). |
| Viet Nam | <ul style="list-style-type: none"> • Sustainability is a critical issue faced by the associations in Khanh Hoa Province. Most of the associations have been long established. However, they usually wait for Government support to carry out their activities. • Their long-term and short-term plans are quite general, broad, lacking in detail and not clear. Normally, a five-year plan is approved in the general meeting. But this plan is very general and must be revised or changed every year at the annual meeting. • The most serious issue is the funding for their activities. Most of the associations do not have sustainable financial sources. Only a small amount of membership fee is contributed from a few members, supplemented by revenue from a few projects. The funds are not enough to support their annual action plans. |

SECTION B

COUNTRY CASE STUDIES

There is no specific case study report for Kyrgyz Republic. All relevant information for this case study is integrated into the synthesis report.

Reported country case studies in Section B are, in alphabetical order, listed in this sequence: Bangladesh, the Philippines, Sri Lanka and Viet Nam.

Strengthening, empowering and sustaining associations of small-scale fish farmers and fish hatchery operators in Bangladesh

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Hossain, M.A.R. & Islam, A.H.M.S. 2020. Strengthening, empowering and sustaining associations of small-scale fish farmers and fish hatchery operators in Bangladesh. In M.R. Hasan, P.B. Bueno & R.A. Corner, eds. *Strengthening, empowering and sustaining of small-scale aquaculture farmers' associations*, pp. 53-79. FAO Fisheries and Aquaculture Technical Paper No. 655. Rome, FAO. 190 pp.

ABSTRACT

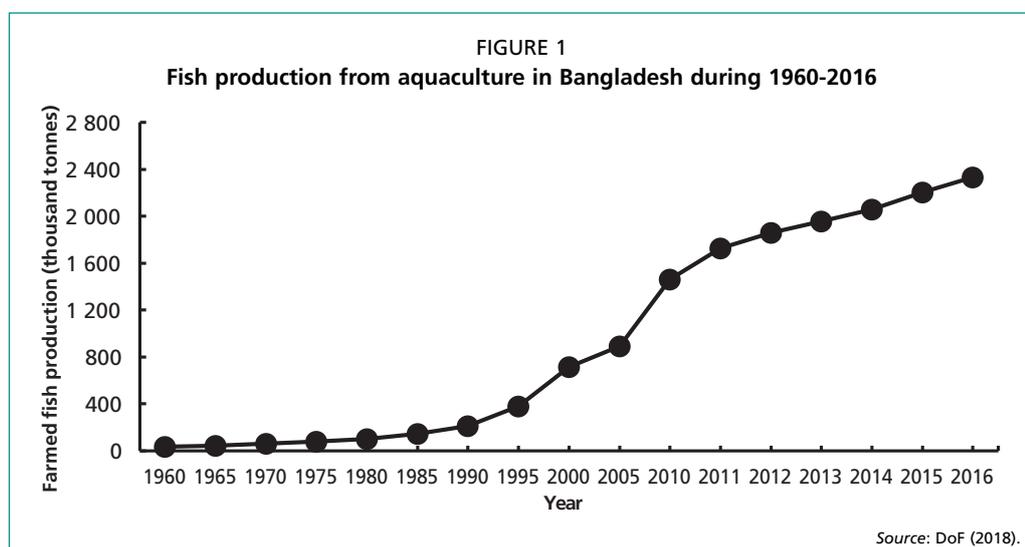
Fish farmer associations offer the potential to support the development of small-scale fish producers and hatchery owners in Bangladesh, through collective bargaining power and receipt of technical assistance. In this study the contribution and constraints that such associations possess is evaluated, through assessment of strengths, weaknesses, opportunities and threats, and evaluation on whether the critical attributes of strength, empowerment and sustainability means such associations will be able to prosper in Bangladesh. The study canvassed stakeholder opinion using key informant interviews using a structured questionnaire and workshops to inform the SWOT analysis and consideration of the extent to which current associations have the necessary attributes to succeed. The report highlights the key typologies of associations, membership and leadership structures, activities undertaken, linkages to government and supplier of services including inputs, and access to service and extension activities, including credit; and the extent to which these contribute to strong, empowered and sustainable associations. Aquaculture has long been an important livelihood option for millions of people in Bangladesh, providing low-cost high-quality animal protein supplied predominantly through small-scale producers. The reports highlights to extent to which associations can help and support expansion and improvement in profits and livelihoods. Most associations in Bangladesh operate at a local level, often at an informal level which generally stop operating for several reasons and would benefit from an apex organization to support fish producers and hatchery operators across the country, as well as district associations. At a district level, the unregistered Jessore District Fish Hatchery Owners Association is the most successful and provides a useful assessment of how good leadership, an active membership and financial security provide for a strong, empowered and sustainable association at the local level. Nationally, the newly formed and soon

to be formally registered (with government) Bangladesh Fish Hatchery and Culture Association (BFHCA) is already showing good leadership, effective management and developing activity that will support members, although government support is needed to ensure the association is able to actively support Bangladesh aquaculture policy and strategy, and receives sufficient government and extension service support, as the country tries to increase production. The study concludes by suggesting several policy-oriented recommendations for Government, and action-oriented recommendations for associations to improve long-term sustainability for aquaculture associations in Bangladesh.

INTRODUCTION AND BACKGROUND

Aquaculture has emerged as one of the fastest growing food production sectors in Bangladesh, contributing significantly to food and nutritional security for the people of the country. Over the last six decades aquaculture in Bangladesh has expanded rapidly and in 2016-17, farmed fish (2.333 million tonnes) contributed more than 56 percent in the total fish production (4.134 million tonnes) (Figures 1 and 2). This is achieved through production and consumption of cheaper but high-quality protein that generates income to small-scale producers of both fish seed and table fish, and increased employment along the value chain. Amidst these achievements, the challenges faced by small-scale fish farmers and seed producers to develop and improve are multifaceted and complex.

Most aquaculture farmers and operators are small-scale, run by individuals or families, and their size tends to limit opportunities for development. Their bargaining power with input suppliers (e.g. feed) and product buyers (e.g. wholesale traders) is limited. Economies of scale are low, which makes expansion of production, intensification, value addition and marketing relatively costly. Transaction costs are also very high due to the small scale of production, poor infrastructure, and low-level linkages with other stakeholders in the supply chain. Often, there is an imbalance in power between buyers, who often represent large companies, and small-scale fish farmers and fish hatchery operators, which leads to agreements that are unfavorable to the small-scale farmers and operators. The small-scale fish farm and fish hatchery sector also suffer from multiple market (e.g. input and output market) failures. These operators, with few personal assets, often have limited access to services such as extension and rural credit, resulting in weak competitiveness in production and product marketing. There are also few opportunities to access processing to add value, and very limited use of information technology and culture technology, which is expensive.





Most small-scale fish farmers and hatchery operators tend to buy low quality inputs, such as broodstock, feed and feed raw materials. Use of poor quality broodstock (e.g. under-sized or same brood fish used year after year) by small-scale fish hatchery operators results in poor quality fish seed. Employment of staff is often through unskilled technicians. In the main these result from a lack of operating capital, to be able to improve decision-making.

Most of these fish farmers and hatchery operators are not aware of day-to-day prices of inputs and saleable products and often are forced to sell their products even when market price is low. There is often an inability to extend the production cycle even for a few days, for example, because of the lack of money to purchase feed, pay for additional labour cost and other costs; and because, in many cases, there are financial liabilities to settle on time, given that initial purchases of stock and feed are often done through credit sales, that need to be settled.

Most small-scale fish farmers and hatchery operators have a very loose or almost no link with service providers, including Department of Fisheries (DoF), Bangladesh Fisheries Research Institute (BFRI), Universities, non-governmental organizations (NGOs) and others. They are either not selected, or not willing, to take part in the technical training programmes arranged by Government organizations and NGOs. Services and policy measures are often biased - even if inadvertent - towards the needs and circumstances of larger operators, so small-scale fish farmers and hatchery operators lack access to proper planning and production targets.

More broadly, these challenges make small-scale fish farmers and hatchery operators unable to comply with the production, marketing, environmental and social standards that are increasing expected, particularly within export markets.

PURPOSE AND OUTPUT OF THE BANGLADESH CASE STUDY

Farmers' associations are increasingly being asked to play a role in driving agricultural transformation processes in many developing countries like Bangladesh. Numerous forums, reviews and experiences have illustrated that being associated can overcome some of the constraints experienced. There can also be broader problems of being associated, however, especially if there is confusion over who the association benefits, if members form or join an association for the wrong reasons (e.g. as the major motivation is simply to take advantage of gratuities and subsidies). There are also issues of how the benefits of being associated can be equitably shared among members, and how society as a whole may benefit from the existence of associations.

These points are considered through this Case Study analysis, which aimed to identify factors that contribute to the strengthening, empowerment and sustainability of fish farmer and hatchery owner associations in Bangladesh. The specific objectives were to:

- a. assess the strengths, weaknesses, opportunities and threats to associations;
- b. identify, describe and explain key factors that constrain the strengthening, empowerment and sustainability of fish farmer associations (FAs) and fish hatchery operators' associations (FHOAs);
- c. identify opportunities for capacity building of farmers' and hatchery owners' associations; and
- d. recommend policy options for empowering and sustaining farmers' and hatchery owners' associations.

The major outputs were:

- a. Identification of the key internal and external factors that should be encouraged to strengthen, empower and sustain farmers' and hatchery owners' associations.
- b. A policy-oriented recommendation for strengthening, empowering and sustaining farmers' and hatchery owners' associations.
- c. Action-oriented recommendations, aimed at strengthening, empowering and sustaining fish farmers associations and fish hatchery owners' associations and institutional service providers.

ROLE AND IMPORTANCE OF ASSOCIATIONS IN BANGLADESH

Associations are generally defined as a group of individuals who voluntarily enter into an agreement to accomplish a purpose. A professional association (professional organization or professional society) is usually a non-profit organization seeking to further a specific profession or trade, for the interests of individuals, members and non-members engaged in that profession, and that of the public. The roles of professional associations have been variously defined as groups of people in a learned occupation who are entrusted with maintaining control or oversight of the legitimate practice of the occupation being represented, who also safeguard the public interest, represent the interests of the professional practitioners and act to maintain themselves as a legitimate controlling body. Sometimes membership of a professional body is synonymous with certification, though this is not always the case. Membership of a professional body, as a legal requirement, can in some professions be the formal basis for gaining entry to, setting up and practicing within the profession.

Fisheries-based associations (Fisheries Associations or FAs) are usually sectoral specific, such as fish farmers, fish hatchery owners, fish processors, and traders and exporters. Like other associations, FAs have rules and charters, typically approved via an executive committee, which members agree to when voluntarily joining the association. A fisheries-based association should support its members to improve capacity, quality and effectiveness in their business, ensure quality of input sources, provide open markets and strengthen competitiveness for products, and more generally contribute to development of the fisheries sector. Whilst important for members join the fisheries-based association, the key to engagement is active involvement, taking advantage of the many opportunities to network, learn, develop professional skills and abilities, improve product quality, increase productivity, to get the fair price for products and to make a lifelong link with others in the same or similar situation.

DATA AND METHODOLOGY

A desk study was carried out to assess available reports, scientific papers and other documents. Primary data were collected from fish farmers, hatchery owners, and association members using a checklist and a questionnaire prepared based on the

FIGURE 3
Field visit and focus group discussions (FGDs) with fish farmers and other stakeholders in different regions of Bangladesh



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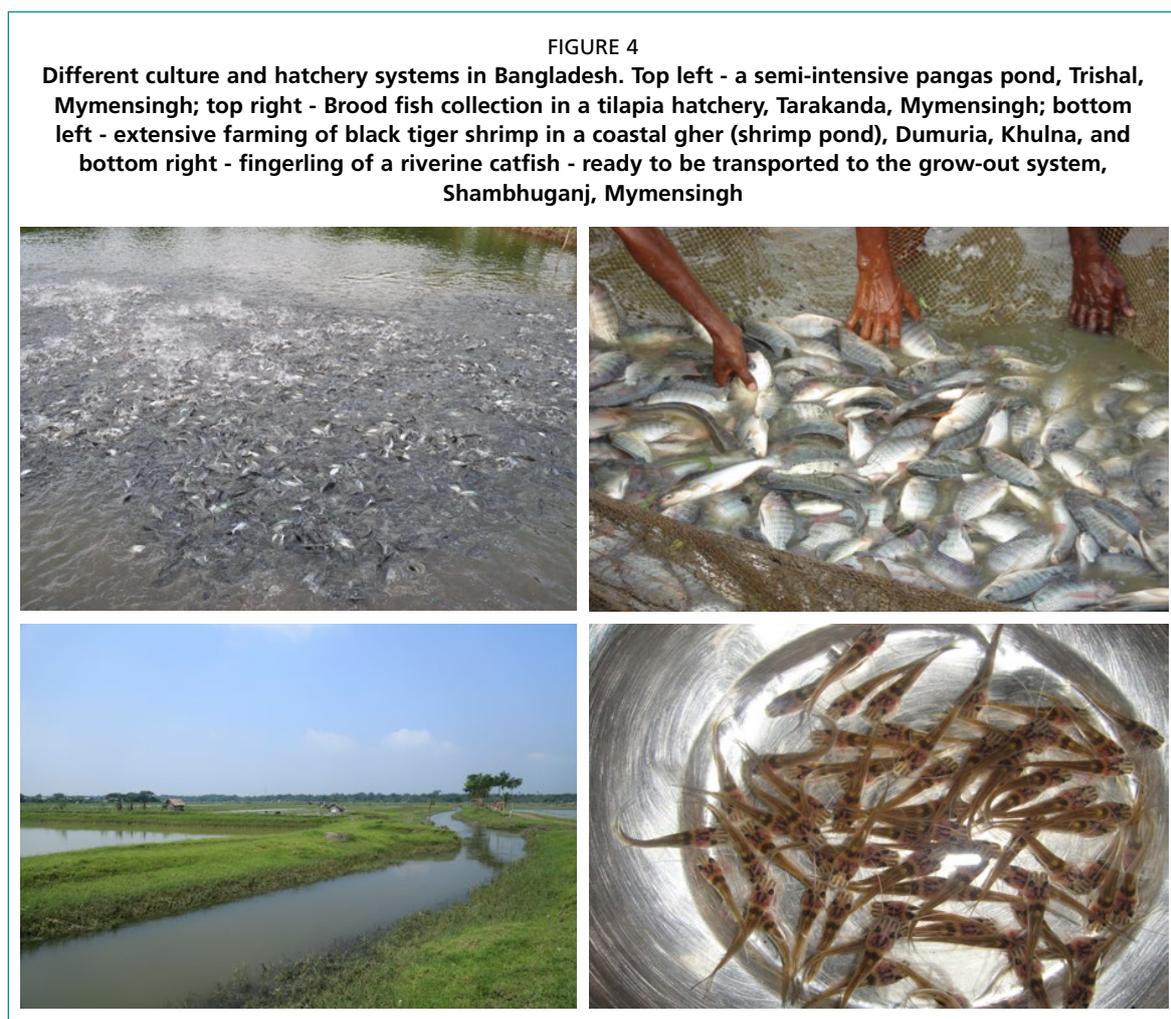
principle presented in Annex 1 of the synthesis. One to one interview, focus group discussions and interviews through mobile phone were employed (Figure 3). A SWOT analysis was conducted to assess the strengths, weakness, opportunities and threats to associations and their memberships. The resulting document is a case study on associations in Bangladesh, using qualitative data and information gained during the study.

OVERVIEW OF THE ASSOCIATIONS IN BANGLADESH

Context

The overall fisheries sector in Bangladesh contributed 3.7 percent to national GDP, 23.1 percent to the agricultural GDP, and earned 1.9 percent of the total foreign exchange earnings in 2014-15. Fish provides 60 percent of the animal protein consumption in the country with an annual per capita fish consumption of 18.9 kg. Fisheries is second only to agriculture in the overall economy of Bangladesh and plays an important role in rural employment generation and poverty alleviation. In 2014-15, approximately 55 percent of the total fisheries output, of 3.685 million tonnes, was farmed and the proportion provided by aquaculture is increasing year on year. Bangladesh has some 20 finfish and a several crustacean species being cultured, with breeding and rearing protocols having been developed and implemented widely (Figure 4).

In addition to 1.32 million full time fishers, some 14.7 million people are involved in aquaculture in Bangladesh, representing livelihood for more than 11 percent of the population. The value chain includes many stakeholders, whose livelihood fully depends on fish farming and fish seed production, including fish farmers, prawn and shrimp farmers, hatchery owners, nursery operators and workers, farm and



hatchery technicians/workers, those working in inputs (including feed ingredients, fertilizer, hormones, chemicals, instruments and so on), importers/suppliers, feed millers, homestead feed producers, fishers (e.g. for wild caught PL), fish processors, fish transporters, wholesalers, exporters, retailers, consumers, government and non-government technology providers and many more. If the available resources are used sustainably with proper technological assistance, fish produced from aquaculture could effectively meet the protein demand of the growing population, contribute significantly to food and nutritional security, employment, and foreign exchange earnings.

The major production is as follows:

- **Freshwater aquaculture:** Indian major carps, exotic carps and Nile tilapia, and pangasius catfish are largely cultured. Culture practices are mainly improved-extensive and semi-intensive. Besides culture of carps, tilapia and pangasius catfish, mono- and mixed-culture of silver barb, climbing perch and a number of other catfishes are also practiced. Average fish production in the ponds is 4 332 kg per ha per year. Freshwater prawns are also cultured with carps in some areas.
- **Brackishwater aquaculture:** Farming of giant river prawns and black tiger shrimp along with fattening of mud crab is widespread in Satkhira, Khulna, Cox's Bazar and Bagerhat District. Black tiger shrimp and giant river prawns are also cultured in these areas. The total production of marine shrimps and freshwater prawns in 2014-2015 was 0.23 million tonnes.
- **Fish hatchery:** Fish hatchery especially for carp started in the late seventies. At present there are 1 004 fish hatcheries, 136 of which are government-owned 136 and 868 privately owned. According to DoF (2016), in 2015, a total of 547.6 tonnes

of fish seed was produced in the country, 537 tonnes from private hatcheries and 10.6 tonnes from government hatcheries. Almost all of the hatcheries are run on a commercial basis.

There are approximately three million fish farms in Bangladesh. Among the fish farms, nearly 20 percent can be considered as large farms, with an individual farm area of more than 300 decimals² which are operated commercially, 30 percent may be considered as medium farms (50-300 decimals), operated commercially and 50 percent are small farms (less than 50 decimals). Some of the small farms are operated commercially but most are run at subsistence level.

For nearly 10 percent of the population, small-scale fish farming is an important opportunity to generate income and is a significant nutritional source providing protein-rich food all year round. It comprises a range of options that can be adapted to suit the needs and capacity of people living in rural and peri-urban Bangladesh. The two approaches commonly implemented on a small-scale are pond fish farming and open water fish farming in beels³, haors⁴, baors⁵, lakes, rivers and reservoirs.

The benefit to low-income poor farmers is that they can invest in fish farming when there is sufficient income, which will then be able to generate additional income and food when other sources of income are limited. The profit from fish farming is generally two to three-times higher than investing in paddy farming. Much of Bangladesh is flooded annually during the monsoon as water flows into the country through the Ganges, Brahmaputra and Meghna rivers. This provides an extensive range of habitats for both wild and farmed fish species. Fish catches are highest during the monsoon and at the onset of winter rains when supplies of other staple foods, such as rice, are low.

One of the main trends in fish farming over recent years has been towards more capital-intensive, high-input high-yield systems, which can dramatically improve the rate of production if operated under ideal conditions. The gradual development of practical hatching techniques for domesticated fish has vastly improved their cultivation and allowed careful breeding and selection of desired species. Although most of these techniques were introduced to Bangladesh decades ago, it has taken time for them to become established, after fine-tuning and necessary modification to the country's environmental conditions.

Considering the importance of culture fisheries, the Government of Bangladesh (GoB) has given a high priority to freshwater and coastal aquaculture development, including seed production. In Bangladesh, induced breeding of carps using pituitary gland hormones was initiated in late 1960s. Since then the GoB, through DoF and the Ministry of Fisheries and Livestock (MoFL), established a number of hatcheries in different parts of Bangladesh; to supply quality fish seeds to fish farmers, and to transfer seed production technology to the rural people who showed interest in setting up hatcheries under their own initiative, to meet the increasing demand for quality fish seed. Over the years, the induced breeding of fish has been so successful that it has resulted in a large drop in the seed price. To date, the main sources of fish seeds in Bangladesh are spawn produced in private and government hatcheries, along with some collected from rivers. Overall, government has introduced a variety of efficiency models and well-developed plans that promises even greater success in the coming years.

To take advantage of different projects, programs, and training and development, all fish farmers and hatchery owners, small to large, need to be united and associated. By being associated they will be better placed to effectively convey their needs, problems

² 1 decimal \approx 1/100 of an acre, 0.004 hectares, or 40.5 m²

³ Small natural depressions.

⁴ Large natural depressions

⁵ Oxbow lakes

and prospects to government and NGOs, to enhance development and to be more effective and sustainable.

TYPES OF ASSOCIATIONS IN BANGLADESH

Although there is an enormous diversity of water bodies dispersed throughout Bangladesh, offering huge potential for fish farming, small-scale farmers are not able to provide all the inputs required for production due to a general lack of capital, access to resources and knowledge. An alternative low-cost approach is more appropriate for many people, relying on existing water bodies and natural vegetation and household waste, supplemented with animal protein in the form of homemade supplements for fish feed. The government has commissioned research and development into low-input systems, low-cost technology, fast growing species and alternative management practices, with the assistance of research institutes and universities, and adopting strategies to minimize the environmental risks of aquaculture. Unlike neighboring countries such as India, Thailand, China and Viet Nam, however, there is no association to promote outcomes and to represent the fish farmers and fish hatchery owners of Bangladesh. Improvement and overcoming some of the constraints identified in the introduction could benefit from effective associations. Through an association, small-scale farmers and hatchery operators would be able to create stronger links with input suppliers, traders, credit providers, training and technology providers and policy makers.

There are different types of the fisheries associations in Bangladesh. The gross division is based on fish seed production (incorporating fish hatchery owners and operators) and table fish production (fish farmers and fish farm owners). There are several formal and informal, local and regional, and product-based associations. Formal associations are generally registered with the Department of Fisheries, but not all associations are registered.

Community-based organizations (CBOs) of the Aquaculture Extension Projects of DoF are good examples of an informal FA in Bangladesh, which provide a model that can be followed for formation and operation of FAs with support from development organizations and government agencies. Some informal fish farmers associations, in different districts of Bangladesh, had been operating well when under the supervision and guidance of district level DoF but ceased operating when the leading DoF officer was transferred. That this can happen when a person leaves is an indication of the fragility of some associations, and shows the lack of proper mechanisms of management, guidance and supervision needed to run associations. The Cluster shrimp farmers' groups in south-west Bangladesh, developed under a collaborative project of FAO-BD, WorldFish, DoF and Bangladesh Shrimp and Fish Foundation (BSFF) are another good example of a farmers' organization which is not registered but acknowledged by local DoF for their performance, in their collective effort to enhance food safety assurance and improve the farming of marine shrimps and freshwater prawns as a business. Solidadad, a network organization, has organized 500 aquaculture producer groups consisting of 28 843 farmers through its SaFaL Project. These are not registered but have a governance structure and are implementing collective business planning towards improving farm productivity and livelihoods.

The Jessore Zila Matshya Hatherly Malik Samity (Jessore District Fish Hatchery Owners Association) is an example of a localized association, formed by fish hatchery owners in this important fishery district. Several regional (based on individual districts) fish farmers associations had been formed in other fishery districts, including Mymensingh and Bogra. Without formal registration with government, these associations either remained effective for a few years since its initiation (e.g. Mymensingh based Fish Farmers Association) or remained largely ineffective from the very beginning where activities were limited to a few meetings only e.g. Bogra Fish Hatchery Owners Association. However, some of the local fish farmers' associations

have been continuing their activities successfully over the years even without formal registration with government. A good example is the Gopalpur Motso Somobay Somiti (Gopalpur Fishers Cooperative Society) in Tarakanda, Mymensingh. Although the local associations have measurable impacts on the development of fish farming sector for the area, for example through taking part in training organized by DoF, BFRI, Universities and NGOs, exchanging information, technology, quality broodstock and market information, their national impact is meager.

In 2014, several fish farmers and fish hatchery owners made a week-long visit to Viet Nam under an exchange programme organized by an NGO called Innovision-Bangladesh, with financial assistance from Katalyst (Swisscontact) and technical and logistic support from Bangladesh Fisheries Research Forum (BFRF) and Department of Fisheries (DoF), with fish farmers and hatchery owners sharing the cost of travel and other expenses. The purpose of the visit was familiarization with advanced hatchery and fish farming techniques and the possibility of acquiring quality broodstock and seed of tilapia, climbing perch and pangas. The team had the opportunity to meet with officers of the Viet Nam Association of Seafood Exporters and Producers (VASEP) and were impressed by the influential nature of VASEP and its overall control of the fish farming and hatchery sector of Viet Nam. Moreover, VASEP effectively protects the legal interests of members and represents members in government and state authority policymaking. VASEP submits proposals and petitions to Government on matters concerning fish production, processing and trade.

In Viet Nam, the Bangladeshi team met initially to discuss the idea of forming an association that would work for the interests of the fish and seed production sector and represent all the fish farmers and hatchery owners of the country. Back in Bangladesh, after several meetings attended among others by the fish farmers and hatchery owners from three important fishery districts of Mymensingh, Bogra and Jessore, the Bangladesh Fish Hatchery & Culture Association (BFHCA) was formed in 2015. A 13-member interim committee was constituted. The committee is composed a president, two vice presidents, general secretary, treasurer, organizing secretary, joint secretary, office secretary, public relations and cultural secretary, and four members. At the time of this study, the last phase of registration was still to be completed. BFHCA, meanwhile, has nonetheless initiated several activities for the betterment of fish farming and fish hatchery activity, as well as aiding stakeholders.

OBJECTIVES AND ACTIVITIES OF THE ASSOCIATIONS

The Fish farmers and fish hatchery owners' associations were formed in Bangladesh to bring together all fish farmers and hatchery owners of the country with the sole purpose of uniting them and providing them with one voice on common issues affecting them. The associations would hence provide the farmers and hatchery owners with a common platform where they would discuss and try to find the ways to resolve the issues amongst themselves and with other stakeholders regarding the variety of issues affecting them.

The platform would also give scope to linkages between farmers and hatchery owners with the government and other development partners, particularly DoF, BFRI, Universities, NGOs, input suppliers and financial organizations.

The associations aim to economically empower fish farmers and hatchery owners, with a focus on solving bio-technological problems, problems in the input supply and output marketing chain, increasing overall income and improving healthy living. There are also aims of enhancing the broader roles of the associations in the agricultural sector towards increased food and nutritional security of the country, and providing networking for fish farmers and hatchery operators, in terms of marketing and research. The associations want to promote and protect and safeguard the common interest of its members through assisting them with management, socioeconomic and marketing issues.

SPECIFIC OBJECTIVES

Associations in Bangladesh may have their respective specific needs and objectives, but in relation to fish farmers and hatchery operators, the following provide a broad list of objectives that all associations wish to see fulfilled. The specific objectives are to:

- bring together all fish farmers and fish hatchery owners in Bangladesh and link them to the government, research institutes, finance/credit providers, development partners and other stakeholders, with the sole purpose of providing them with one voice;
- create awareness amongst the members on sustainable table fish and fish seed production and marketing;
- promote provision of quality farm inputs including high quality broodstock, fish seeds, fish feeds and others;
- promote organized product marketing systems and value addition opportunities, and to communicate with trade associations and other mercantile and public bodies in the country, and internationally, and promote measures to ensure a fair price for fish products, from traders and other persons engaged therein and specially in matters related the interest of members of the association;
- define regional training needs on key issues and aspects, and provide links with government and NGO training providers;
- lobby for and advocate for better policies with government, development partners and policy makers with a bearing on fish sector;
- consider, originate and support improvements in the laws, acts, policies and legislations affecting the fish farm and hatchery sectors;
- enter into arrangements with any government, or authorities, that are conducive to the objectives of the association, and to obtain from any such government authority any rights, privileges and conversions that the association may think it desirable to obtain, and to carry out, exercise and comply with any such arrangement, privileges, and concessions.
- collect and circulate statistics and other information on fish farming and fish hatchery operations in the country and to assist information (data and technology) generation, exchange and networking amongst the members;
- facilitate institutional strengthening and capacity building amongst the members;
- serve as a resource, information and call centre for farmers and hatchery operators, which will provide them with a current database of key industry indicators and information required on both input and output Markets; and
- form a code or codes of practices to simplify and facilitate transactions of deals in fishery hatcheries.

MAJOR ACTIVITIES

The major activities performed and planned are:

- **Lobby and advocate on all fisheries policies and legislations**
Policy and regulatory bottlenecks hinder the development of farming of table fish and fish seed by small-scale fish farmers and hatchery owners and discourage investment by development partners and all others in the value chain. One of the key functions of the associations is to ensure that the policies and legislation put in place favor the development of fish farming sectors in Bangladesh. There is a long way to go and still a lot to be done to build a better enabling environment for fish farmers and fish hatchery owners in the country. The fish farmers and hatchery owners' associations, together with other stakeholders within the fish value chain, would like to work to formulate and implement policy where it does not exist and where it is poorly implemented.
- **Promotion of information, networking and communication among fish farmers and fish hatchery owners, with all other pertinent stakeholders**

The information and networking gap have long been a major setback for fish farming in Bangladesh. This crucial problem must be addressed to improve communication and knowledge of aquaculture development in the country. The association would like to assist in information (data and technology) generation, exchange and networking amongst the members.

- **Advocate for Improved production of quality fish seed**
Associations undertake advocacy, and will continue to do so, to continually improve the production of quality fish fry and fingerling for better aquaculture development.
- **Advocate for development and production acquisition of quality fish feeds**
The fish farmers and hatchery owners in Bangladesh are facing a shortage of high-quality feed ingredients and formulated feeds. Poor quality fish feed, combined with the high cost of feeds in the market, is exacerbating the already critical situation, leading to extremely high production costs and production of poor-quality fish. Associations will work with partners to improve the fish feed situation and ensure their members get the best quality feed while paying an optimum price.
- **Capacity building of members, and improvement of business skill and farm management**
The associations must continually build the capacity of fish farmers as well as create awareness on fish farming development issues, to help in the growth of the aquaculture sector.
- **Marketing of aquaculture products**
Smallholder fish farmers have limited access to local and regional markets, that reduces their ability to sell their produce. It also limits smallholder incomes and food security in general. Medium and large farmers and hatchery owners also often become victims of organized syndicates of fish and seed traders. Associations are to work on negotiating with the traders, looking for alternate markets and in this way, assist fish farmers and hatchery owners to get the optimum price for their produce.

STRUCTURE, LEADERSHIP AND MANAGEMENT COMPOSITION OF THE ASSOCIATIONS

To achieve its objectives, the associations boast of an elaborate leadership structure running made up from small-scale or marginal fish farmers and hatchery operators to large hatchery owners and fish farmers. The associations are made up of representatives from each level of the association's membership, including chairman, secretary, treasurer, youth and women's representatives.

STRATEGIC PLANS OF THE ASSOCIATIONS

The associations strategic goals are based on the association mandate to facilitate the development, exploitation, utilization, management and marketing of aquaculture and seed production resources, to do this sustainably through lobbying, collaborations and partnerships, and development and research to improve product quality, increase profitability by ensuring optimized prices for production inputs and produce, increase incomes, increase food security and poverty alleviation. The association would like to achieve this by focusing on, but not limited to, the following areas:

- **Enhance the performance of the Association**
This will be done by capacity building through a strong membership base, and promotion of partnerships.
- **Improve service delivery to members**
The associations will achieve this through networking and promotion of partnerships and collaborations for increased membership.

- **Maintain the Association operation and management**
The associations will ensure this through increasing the number of the members, country-wide; regular (monthly/quarterly/yearly) subscriptions; better resource mobilization; effective partnerships and collaborations; as well as alignment to development partners.
- **Improve marketing strategies**
This will be achieved by negotiating with trade people, finding alternate markets in the country and overseas, and promoting specialization and value addition.
- **Information and communication platform**
An effective and useful information and communication system and structure will be developed, for fish farmers and hatchery owners, with all other relevant stakeholders, partners and collaborators.
- **Involve youth and women in fish farming and fish hatchery operations**
The association will promote and persuade better participation of young people and women in fish farming and hatchery operations.
- **Conserve ecosystem**
The association will promote aquatic habitat conservation through dissemination of data and information, promoting linkages and dialogue, as well as creating an enabling policy environment within the fish farming and fish seed production sub-sector.

BENEFITS OF BEING MEMBERS OF AN ASSOCIATION

Associations are formed with a mandate to facilitate the sustainable improvement, utilization, management and marketing of table fish and fish seed; through lobbying, collaborations and partnerships, and research to improve product quality; ensuring fair prices for the production input (e.g. feed) and outputs (e.g. seed, fish for sale); increase incomes and profitability, and ensure nutritional security and alleviate poverty. The associations want to achieve this by organizing workshops, field days, exhibitions and campaigns to help address technical and socio-economic aspects, publish the events and lobby the relevant stakeholders and institutions on issues affecting farmers.

The major benefits of being a Member of an association are:

- Associations provides a platform for all the farmers and hatchery owners to come together.
- Associations would like to serve as a direct source of information and sharing to fish farmers, hatchery owners, government agencies, partners, consumers and other relevant stakeholders within fisheries sector.
- Associations would like to engage with training and other support providers and organize training and discussion with farmers and hatchery owners and ensure capacity building on a continuous basis on technical, quality and marketing issues.
- Associations can arrange exchange programs in regions who use more advanced fish seed production and farming technology.

Other benefits include:

- effective representation of interests in country, national and international forums;
- facilitation on the flow of information between members and associated interest groups; and
- networking opportunities.

Services provided by associations to its members include:

- advocacy and lobbying on all fish farming and fish hatchery acts, policies and legislations with government;
- promotion of information, networking and communication among fish farmers, hatchery owners and other stakeholders;
- advocacy for improved production of quality fish seed and broodstock;

- advocacy for development and production of quality commercial feeds for different stages of the fish production cycle;
- encouraging members on group operations and management, aqua-business skills, fish farm and hatchery management skills and value addition;
- marketing of aquaculture products, notably table fish, fish seed and broodstock; and
- mass media coverage of events as well as having its own regular publication.

RESOURCES OF THE ASSOCIATIONS

Assets

The primary asset of an association is the membership. It is people that change the nature of operations and who bring their skills, experience and expertise to bear to bring about change, because of the value they bring to a relationship or organization. Other assets of value are both tangible and intangible. Tangible assets include office building and facilities, land, ponds, cages, equipment, vehicles, and so on, along with cash available to undertake activity through bank deposits, cash in hand, certificates of deposit, corporate bonds, corporate stocks, savings accounts, and so on. Intangible assets are non-physical things of value that represent an advantage to an association. These include brand names, copyright of products or technologies, chemical formulas, customer relationships, designs & drawings, domain names, goodwill, joint ventures, permits, property use rights, training manuals, use rights for water and land and so on. The resources possessed by the fishery associations in Bangladesh are discussed in the next two sub-sections, focusing particularly on Jessore District Fish Hatchery Owners Association and the Gopalpur Matsya Samobay Samiti.

Human resources

The most valuable asset of an association is its human resources, often under used or underdeveloped. The fisheries associations of Bangladesh must recognize the importance of human capital. From an association perspective, the goal is to have enthusiastic and energetic membership, and an effective management team through EC members.

The Jessore District Fish Hatchery Owners Association (JDFHOA) has a 21-member Executive Committee (EC), composed of the President, Vice-President (3), General Secretary, Joint Secretary (2), Organizing Secretary, Publication Secretary, Cultural Secretary, Office Secretary, Finance Secretary, and Members (9) and elected by the vote of the members. The EC members and general members are highly motivated and feel proud to be part of the association. With strong goodwill and feelings for the association and the fish sector of Jessore, the thirty-five members have been playing a vital role in the fish seed sector of the district and neighboring areas. Several members of the association hold very good quality broodstock and exchange of broodstock among them is common and encouraged by the executive committee, to maintain the overall quality of seed produced.

The members of Gopalpur Matsya Samobay Samiti are also very motivated and always look for opportunities to improve their farming systems, increase their production and assist others. Fish farmers, hatchery owners and the public know this 11-member association very well. The members are influential in the community, have good relations with the providers of inputs (i.e. seed, feed, fertilizers and others) and services (BFRI, BAU, local DoF and NGOs) and are always at the forefront when assisting other fish farmers with advanced fish farming technologies, news and information about quality fish seed, upcoming training and other events. They try to maintain the link with people involved in fish marketing.

Tangible and intangible assets

Jessore District Fish Hatchery Owners Association (JDFHOA) collects BDT5 000 annually from each of its thirty-five registered members. In 2016 the association had more than one million BDT in its account, growing each year with the annual contribution of the members. It has a well-equipped office in Chachra More, Ward No. 6 under Jessore Municipality. The association is known to all and bears a good name in the district. The people of Jessore and many other districts believe that members of this association produce better quality fish seed than others. Fish farmers and fish hatchery owners come to the association members to purchase quality fish seed and requesting advice regarding advanced fish farming and hatchery techniques. They also have good relations with the input suppliers. Using the reputable name of the association, as a brand, the members have been doing good business over several years.

The Gopalpur Motso Somobay Somiti, has an office near the fish farms of its members in Tarakanda, Mymensingh. Similar to the JDFHOA, although on a much smaller scale, the members of this association are well-known in the community, doing good business, and many people come to them not only to buy fish but also for advice on fish farming techniques such as pond management, stocking densities, fish disease and feeding. The manufacturers and suppliers of feed, fertilizer and other inputs are in good relations with the association members. The association members deposit a monthly fee of BDT100 and at present the association has assets in cash and kind worth BDT0.5 million. Using resources, the association has purchased three seine nets, two lift pumps, 20 fish carrying drums and two digital measuring scales, and by renting these to member and non-member fish farmers, the cooperative is able to earn additional revenue.

The Bangladesh Fish Hatchery & Culture Association (BFHCA), started its journey in 2015, and will conclude its full registration within a few months. It does not currently have an office but has plans to set up its main office in Dhaka, with branch offices of divisional chapters in each of the seven divisions, and branch offices in Comilla and Bogra. For each member, the admission fee and annual contribution will be BDT10 000 and 5 000, respectively. BFHCA plans to purchase land and ponds and maintain brood banks to be able to supply quality fish seed to its members and to the wider country and, subsequently, overseas.

ORGANIZATIONAL LINKAGES, NETWORKS AND COMMUNICATION WITHIN ASSOCIATIONS

The functions of an association's communication network include:

- providing the means for coordinating the activities of individuals, relationships, groups and other subunits within the association;
- providing mechanisms for directing the activities of the association;
- facilitating the exchange of information within the association; and
- ensuring the flow of information between the association and other organizations and the wider external environment.

One important feature of communication with an association is related to size. An increase in the number of individuals in an association dramatically increases the number of reciprocal communication linkages that are possible and necessary to connect the persons involved. Communication within an association refers to the messages sent and received within the association's formal and informal groups. As the association becomes larger and more complex, so do the communications. In a three-person association, communication is relatively simple, but in an association of many members it becomes a highly complex and often requires a specialized system and function within the association.

Communication in an association can be both formal and informal. The formal communications are those sanctioned by the Association (decided by the EC) itself

and are oriented towards the goals and objectives of the association. The informal communications are socially sanctioned, they are oriented not to the association itself, but among individual members. There is also an obligation to communicate externally and the following sub-sections show how this is done with different groups of organizations.

Government organizations

The fish farmers and fish hatchery associations of Bangladesh have moderate linkages and communications with government organizations. The DoF has been playing the role of a frontline public-sector organization for fisheries development. There are administrative offices of DoF at division, district and upazila (sub-district) levels. One important mandate of DoF is to disseminate improved aquaculture technologies through training and demonstration and to extend extension services to fishers, farmers, hatchery and feed producers, fry and fish traders and other stakeholders.

A number of fish farmers and fish hatchery owners are involved with different activities of DoF. It is not possible for Upazila fisheries office to reach all fish farmers and hatchery owners, so many remain out of coverage by DoF. A few of the large fish farmers have very good link with local DoF offices and headquarters. The JDFHOA, since its initiation, has been maintaining close links with the Jessore office of the DoF and DoF headquarters in Dhaka.

Some of the large fish farmers and hatchery owners, mainly from greater Mymensingh, Comilla, Bogra and Dhaka, maintain relations through individual links with local DoF office staff, and also with head quarter mainly through events like annual fish week, government awards for best farmers and hatchery owners and through different government development projects and programmes implemented by DoF, along with some other government departments like Department of Youth, Rural Development Academy (RDA), the Palli Karma-Sahayak Foundation (PKSF) and so on.

Science and technology institutions (universities, research institutes)

The fish farmers and hatchery owners are not very well linked with science and technology institutions. In addition to Bangladesh Fisheries Research Institute (BFRI), twelve public universities presently conduct research on development and fine-tuning of fisheries technologies. BFRI has its headquarters in Mymensingh, along with five stations and five sub-stations in strategic locations within the country. The now defunct Mymensingh-based Fish Farmers Association maintained a good linkage with both the Faculty of Fisheries of Bangladesh Agricultural University (FoF-BAU) and the headquarters of BFRI. At present JDFHOA has moderate linkage with freshwater sub-station of BFRI in Jessore and with fisheries department of Jessore Science and Technology University.

Once again countrywide, a number of individual fish farmer and hatchery owner maintain good linkage and communication with science and technology institutions particularly with FoF-BAU and BFRI stations and sub-stations. In this regard, the larger fish farmers and hatchery owners are seen to have privileged access, while the small and poor farmers are mostly left out of any research and technological development. The research activities of other stations and sub-station and public universities, within their limited capacity, do occasionally try to include the fish and fish seed producers as trial farmers, and sometimes as participants during the exit phase of a project.

NGOs and INGOs

At an individual level, people involved in fish farming and seed production have a modest linkage with different programmes on training, results dissemination and credit

programmes operated by NGOs and International Non-Governmental Organization (INGOs) like BRAC, CARITAS, Proshika, WorldFish, Winrock International, Danida, Swisscontact and so on. The same is also true for associations, where even the well-organized JDFHOA doesn't particularly good communication and links with these activities. Overall there is an opportunity for associations here, in better links to such organizations and programmes.

Financial Institutions

The linkage to financial organizations is very poor, particularly for small and marginal farmers and hatchery owners. Large farmers and hatchery owners have good access to both the public and private banks. The interest rate on loans from public banks is 10 percent and for private banks 12 to 13 percent. Bangladesh Bank under its equity fund (EF) gave a seven-year interest free loan to agricultural sector entrepreneurs, including dozens of fish farmers and hatchery owners, but only large and influential businesses received the loan.

There are no formal links between associations and banks, although JDFHOA sometimes assist their members to complete application forms to receive loans from the banks, and in this way, provide a small influence. The small and marginal fish farmers and hatchery owners, where credit is needed desperately, cannot access such credit due to the lack of collateral or security; an unwillingness (perhaps through lack of skills) to complete the necessary paperwork; and often due to harassment by dishonest bank officials asking for bribes, even for small loans; mean small-scale farmer and operators do not approach the bank for support, but rely instead on extremely high interest loans from local money-lenders.

The ad-hoc Committee members of the proposed Bangladesh Fish Hatchery & Culture Association (BFHCA) are determined to address these issues and would like to go for formal agreements with banks to ensure credit for all small and large fisheries entrepreneurs, whatever their needs, along with easier conditions and low interest rates.

Mass media organizations

The linkage and communication between fish and fish seed producers and mass media organizations, especially local television and newspapers, is very strong. The Government-owned Bangladesh Television and more than 20 private television channels all broadcast regular agricultural programs, including fisheries, covering new technological innovations, new fish domestication techniques, provide successes and failures and relay the problems and prospects of the sector. Even in the remote areas of Bangladesh, a number of issues are regularly aired on television, daily newspapers, monthly or quarterly popular Bengali journals, and online newspapers. Subjects covered include successful fish farmers and fish seed producers, acute and chronic problems in the fish sector, fish and shellfish disease, genetic problems, fish feed related issues, use of chemicals, fish marketing, exposing exploitation of fisheries entrepreneurs by traders and input providers, livelihood of fisheries people and environmental issues.

Irrespective of large and small entrepreneurship, stakeholders are regularly approached by journalists, reporters, feature writers and photographers who document and broadcast things of interest. The media are also contacted by fish farmers and hatchery owners, who meet at their farm/hatchery sites, to describe their success stories and various dilemmas they go through.

All the associations interviewed confirmed their close linkage with mass media organizations. Ad-hoc Committee members of the proposed Bangladesh Fish Hatchery & Culture Association (BFHCA) also have a long and close linkage to media organizations, and believe in the long-term that mass media will play a major role in taking the association's activities forward and communicating news, success stories and problems of the sector across the country will be important.

Input suppliers and product buyers

Usually individual farmers and hatchery owners deal with input suppliers and product buyers directly. As previously noted small-scale fish farmers and fish seed producers, tend to have limited bargaining power with input suppliers and product buyers. The volume of purchases for feed, fertilizer, hormones, and other chemicals for an individual small-scale fisheries entrepreneur is small, as is their sales volume of table fish or fish seed, and this makes them vulnerable to be easily exploited by the large manufacturer and wholesalers and their sales agents or middlemen. In addition, their production cost is very high due to the small scale of production, poor infrastructure, and low linkages with other stakeholders in the supply chain. Often, this imbalance of power leads to very minimal profit from selling their products, where in many cases they cannot make any profit and can and do suffer from extensive losses.

The fisheries associations, in this regard, can have a much better and advantageous linkage with the input providers and product buyers. In many cases, association contacts the input providers and through successful bargaining, purchases the input on much better terms than an individual farmers or hatchery owners can. These larger purchasing volumes are later divided among the association members. Similarly, in selling table fish and fish seed, and association can directly contact wholesalers in large cities like Dhaka, Khulna, Chittagong, or the larger fish farmers of Mymensingh, Bogra, Comilla, Dhaka and Jessore. This way, associations can avoid the need to sell at a low-price low down in the value chain, by-passing tiers to fetch a much higher price. According to the members of functioning associations, this is a clear benefit of being a member of their association.

EXTERNAL AND INTERNAL OPERATIONAL ENVIRONMENT

An association must have the capacity to examine and make changes based on the internal and external operational environment that affect its performance. The continuous analysis of these environmental factors is the key to a successful association. Internal environmental factors are events that occur within an association and are easier to control than external ones. Some examples of internal environmental factors are:

- management changes;
- employee morale;
- mode of operating the association; and
- changes in financial transaction.

External environmental factors are events that take place outside of the association and are harder to predict and control. These can be more hazardous for an association given the fact they are unpredictable and hard to prepare for. Some examples of external environmental factors are:

- changes to the economy of the nation;
- threats from competition of other sectors;
- political factors;
- government regulations; and
- overwhelming problems in local and overseas markets.

Controlling internal environmental factors for fisheries associations in Bangladesh is relatively easy as the EC members are very active and newly elected at every 2 years. They are always vigilant about their performance, sit for regular monthly or bi-monthly meetings and participate in annual general meetings (AGMs) and make and approve necessary changes. There is often a competitive nature, where the present EC will try hard to do better than former ones.

An associations control over external factors is more limited, and at this level are not very organized, and there is a lack of a central association to represent the interests of the wider small-scale fish farmer and hatchery operator, means their presence at the policy level is almost non-existent.

The Department of Fisheries under MoFL has, in recent years, amended, ratified and passed a number of fisheries and environmental laws, acts and rules. Example include:

- Wetland Act;
- Fish Act;
- Fish and Animal Feed Act; and
- Fish Hatchery Act.

The country is a signatory of several international conventions, such as the Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species of Wild Fauna, and the Ramsar Convention. The Department of Fisheries has also formulated National Fisheries Strategy, National Shrimp Policy and Fish Preservation Policy.

Though fish farmers and hatchery owners are one of the major stakeholder groups affected by these changes, either positively or negatively, they were hardly consulted. Even in the project planning workshops (one year and five years) there was hardly any presence of representatives of fish farmers and hatchery owners.

The price of imported inputs like fish meal, soybean, brine shrimp, vitamins and minerals are gradually increasing, at an alarming rate, and neither the associations nor the individual fish farmers and hatchery owners can do anything to stem the price increases. Fish farmers and hatchery owners, making hardly any profit on their endeavors, have no presence and no role to play at the policy level of government.

The proposed BFHCA plans to control internal environmental factors efficiently, and externally plans to play much better role at the policy level of government (DoF, MoFL). There is, however, skepticism on whether this association can play a significant role at the policy level, unless and until they become very well-organized, experienced to deal with government departments, know their rights well and be familiar with the processes and about how other entities deal with government to resolve issues using different means. This will take time for the association and government departments also need to change their attitude and approaches from a less top-down to a more bottom-up approach.

MAIN ACHIEVEMENTS AND CHALLENGES

Achievements

The current members of associations are motivated and have positive feelings towards the associations to which they belong. The democratic culture, financial transparency, participatory attitude, compliance with constitutions and other rules and regulations within the associations prevail. Occasional meetings and discussion with high level policy makers, such as the Minister and Secretary of MoFL and Directors and Director General of DoF was possible only because of membership of an association. The associations are particularly useful in dealing with input providers and product buyers.

Even though fisheries are considered as a sub-sector of Agriculture, the fish farmers and hatchery owners, in the past, were discriminated against compared to other agricultural entrepreneurs, when they paid income tax. After several years of continuous activity by the associations, and many fish farmers and hatchery owners of the country, the National Board of Revenue (NBR) in Bangladesh has recently been convinced to alter the requirements, and farmers and hatchery owners are now allowed a tax-free income of up to BDT two million, like other agriculture entrepreneurs. For the general population the limit is BDT0.25 million.

These associations successfully created a good branding for the products produced by their members. Associations assisted its members to take part in different training programmes and to receive technical support provided by government organization, NGOs and research organizations; and a few of members also took part in the exchange visits to closely observe and receive hands-on training in Thailand, Viet Nam

and the Philippines. The associations have formidable savings to assist its members in emergencies, to arrange regular meetings, AGMs, social gatherings and annual picnics, and more generally to spend the money received for the betterment of general members.

Challenges

First and foremost, the challenge for existing associations is to increase their respective impact as much as possible. Most of the associations have limited members; JDFHOA has only 35 members, mostly large and rich hatchery owners. It should break this boundary and include all hatchery owners, particularly the small and marginal ones. Gopalpur Motso Somobay Somiti has only 11 members and seems reluctant to increase the membership and overall volume of the association. It doesn't have a written constitution, nor a bank account and these must change quickly.

There is currently no central association for fish farmers and hatchery owners in Bangladesh now. The main challenges for the proposed BFHCA is motivating its potential members and organizing them under one umbrella. The constitution, already prepared, must be endorsed in the annual general meeting by all the general members. There is also a need to ensure equity by approving a one farm/hatchery-one vote policy, irrespective of size. The large farmers/hatchery owners, however, might strongly object to this policy.

The next set of challenges lies on familiarizing and effectively linking the associations with government, non-government, public and private organizations, other service providers, input providers and research organizations. This should include having a key policy-maker level and sending representatives to departmental and ministry level meetings, project planning workshops of DoF, BFRI and universities. Although challenging this must be undertaken to ensure success and growth within the association. One further challenge would be pursuing DoF to tailor its development projects and programmes to be coherent with the needs of the fish farmers and hatchery owners. Making advantageous agreement and contracts with input providers (importers, traders etc.) and fish marketing infrastructure will also be challenging. Finally, to turn the association in to an indispensable entity in the fisheries sector of the country and to motivate and inspire all its members to produce quality products in a sustainable way will be the most challenging task to be undertaken.

The major challenges for fisheries associations in Bangladesh are:

- providing a common interest for smallholders, towards participating in the associations;
- overcoming a lack of institutional capacity within the smallholder associations;
- to develop business cases on smallholder associations as service providers;
- setting the common criteria to enable all fish farmers and hatchery owners to integrate into the associations;
- providing a governance structure for smallholder associations; and
- ensuring government organization and NGOs encourage involvement of farmers association, to overcome the lack of policy involvement; and then to enhance the benefits to members.

SUSTAINABILITY ISSUES

Although there is scope for improvement, the democratic culture, financial transparency, participatory attitude, goodwill among members and adherence to the constitution, rules and regulations by the members, are reasons for the sustainability of JDFHOA. It successfully created a reputable brand for the products of its members. JDFHOA has the ability to obtain a better price for its members through successful negotiation with traders, improving the long-term sustainability of members. The association has a much better linkage with input providers and in many cases, purchases the

inputs, through successful bargaining and better terms than an individual farmer or hatchery owner would be able to achieve. Whilst it maintains these successes then the sustainability of the association will continue.

Though very occasional, the one to two meetings, attended by the association, with the Minister and Secretary of MoFL and Director-General of the DoF has boosted the morale of members. The association members are also closely linked with mass media that allow them to express their opinion and exhibit their successes and failures to the people of the country. The association assists members in taking part in different training programmes, and in receiving technical support from government organization, NGOs and research organizations, locally and overseas. It has good savings generated from membership fees, that can be used to assist its members in emergencies, and for other development purposes. Above all, the members are motivated and have a positive feeling towards the association. This makes JDFHOA one of best performing hatchery owner associations in the country.

The proposed BFHCA should learn from the experiences of JDFHOA, and other associations, in how they overcame specific challenges so as not to make similar mistakes, as the associations develops. This will assist BFHCA to achieve its goal of uniting fish farmers and hatchery owners in Bangladesh, representing them at national level and in the international arena, and will support the associations sustainability, so it is beneficial to stakeholders and to the nation.

There are several factors that make for a successful association (Table 1).

LESSONS LEARNED

Bangladesh does not currently have a national level association to represent all the fish farmers and hatchery owners in Bangladesh. The experience in meeting with VASEP in Viet Nam, has led to development of the BFHCA, that will start working soon. The interim ad-hoc committee members of BFHCA have completed methodical and systematic groundwork, including starting the registration process, and have set a clear vision, with achievable goals and objectives and high expectations. If developed and managed effectively with appropriate assistance from government organizations, NGOs and research and development institutions, BFHCA could become an effective national level organization, and a true representative of the fish farmers and hatchery owners of Bangladesh.

The existing associations of fish farmers and hatchery owners are doing well within their limited geographic and membership capacity. However, these also need to improve their performance and require well-targeted assistance from different government, non-government and private organizations and research institutions.

STRENGTH, EMPOWERMENT AND SUSTAINABILITY

In this section the strength, empowerment and sustainability of associations is considered through assessment of Jessore District Fish Hatchery Owners Association.

Strengths of JDFHOA

Members of JDFHOA are highly motivated and feel proud to be members of the association. Members have a common interest and do the same work, with similar goals. JDFHOA has a written constitution, which members abide by. The association has sufficient skills and experience to effectively achieve its objectives. The EC members are vigilant about their responsibilities and attend regular meetings. At the AGM, the members, with the Executive Committee, discuss and approve plans for the association. The association is well-known in Jessore, and in other districts, and bears a good name. Fish farmers of Jessore and other districts believe that JDFHOA members produce better quality fish seed. Several members of the association hold quality broodstock and exchange them with other members. Fish farmers and fish hatchery

TABLE 1
A number of common criteria/issues that make an association a sustainable and successful one and lack of these makes other unsustainable or failed

| Factors | Successful associations | Failed associations |
|--|---|---|
| Interest | All members have common interest and concentrate on aquaculture as their major profession. | Lack of common interest, many rich and elites involved in other businesses became members but lacked sufficient time to fully engage. |
| Constitution/ Ordinance | Properly formulated and abided by. | None, or poorly developed. Where it is developed, not properly followed. |
| Financial | Members pay regular fees on time, transparent accounting, regular audit, good amount of savings in bank. | Irregular payment of membership fees, EC control financial aspects, members have no access to income and expenses statements, irregular or no audit, almost no savings. |
| Meetings | Regular, held monthly or bimonthly, quarterly EC meetings, clear planning for the future activities. | Irregular meeting, most of the EC members absent from meetings. |
| Executive Committee and Practice of democracy | New EC is elected after a defined tenure, using direct vote (one member one vote) of all members at an AGM and smooth handover of duties and responsibilities from old to new EC. | A few persons hold EC positions year after year. Members are unhappy. Democratic practice is absent. Irregular or no AGM. |
| Office, staff physical resource | Have a head office, and potentially some branch offices. Offices furnished with necessary equipment, including computers, internet and others. | No office, few or no physical assets. |
| Link with Government organizations and NGOs | Good linkage, bringing benefits to members. Active and advantageous participation in government and NGO projects and programmes. | Almost no link, association and its EC are not known to the government organizations and NGOs. No participation. |
| Linkage through the input and output value chain | Good linkages, work towards ensuring optimized input and output price for members. | No linkage, members gain nothing. |
| Regular programmes | Regular events – training, awareness building, seminars, symposia arranged by association and by relevant government organizations and NGOs for the benefit of members. | Very occasional or no events, not invited/ included in the events organized by government organizations and NGOs. |
| Equitable benefit sharing | Financial, technical and social benefits equally shared among all members. | Only a few at the top (a few EC members – President, GS etc.) enjoy the benefit |
| Problem solving – technical, social | EC plays crucial role and links its member with service providers to overcome technical difficulties and social hitches. | Almost no role and not capable of or willing to play any role in solving any problems. |
| Assistance in need | If any member is in dire need of financial assistance, association can help him/her based on EC defined terms and conditions or can effectively link with formal credit providing institutes. | Doesn't care about the problems of its members and no linkage with credit providers. |

owners purchase quality fish seed from the association members and seek their advice on advanced fish farming and hatchery techniques.

Empowerment of JDFHOA

JDFHOA can interact, negotiate, collaborate and work with other stakeholders. The association has moderate linkages with input providers and product buyers and assists its members to achieve a better price for their product through successful negotiation with trade groups. It has a strong linkage to and communicates effectively with mass media, especially television channels and has a good linkage with District DoF, BFRI, & Jessore Science and Technology University (JSTU).

According to JDFHOA members, the real importance of being associated is empowerment in dealing with input and output markets, with a clear benefit obtained

since becoming members of the association. To date JDFHOA, has been able to create a good branding of products produced by its members, with purpose of advancing common aspirations and achieving common objectives. The association assists members to take part in different training programmes and to receive technical support from government and national and international NGOs.

Sustainability of JDFHOA

A democratic culture, participatory attitude, fellowship and goodwill among members are major attributes behind the sustainability of the Association. The EC is very active in controlling internal environmental factors like management, employee morale, mode of operating the association and financial transactions. It has sufficient resources to operate with members paying their fees regularly and the accounting of funds is transparent. Revenues and disbursements are properly and annually audited. The association spends its resources for betterment of all members. It has sufficient savings in the bank and does not rely on subsidies to maintain organizational functions. EC members of JDFHOA arrange regular meetings, AGM, including social gatherings such as an annual picnic. Development of a good reputation through good branding of the association, JDFHOA members have seen their business develop well over some years.

SWOT ANALYSIS OF THE ASSOCIATIONS

Small and marginal fish farmers and hatchery owners do not have sufficient voice individually and require an association to improve their status and to support development. There are thousands of fish farmers and hatchery owners but to discuss any issue they need to be associated. An organized and legitimate voice is very important to fish farmers, particularly in a developing country where most decisions are made from the top. Given that fisheries and hatchery associations are recent developments within Bangladesh, it is useful to identify what are their strengths, weaknesses, opportunities and threats. The SWOT analysis can provide a clearer picture of the constraints and opportunities for associations and inform a strategy to empower and strengthen an association. Based on interviews with different stakeholders and current association members, and a review of the association in the form of published and unpublished literature including the constitutions, Table 2 presents a broad picture of an associations' strengths, weaknesses, opportunities and threats.

AREAS REQUIRING FURTHER SUPPORT FOR SUSTAINABLE OPERATION OF THE ASSOCIATIONS

The fisheries associations need all members to be attentive and energized, and to respond to changing demands and/or need for creative solutions. This creative spirit must be engaged and nurtured by the executive committee. From an association perspective, the goal is to have enthusiastic and energetic fish farmers and hatchery owners as their members so that all the programs can be accomplished with ease, within deadline and budgets. The fisheries associations of Bangladesh need social advisory services, training and backstopping support from the Department of Social Service and the Department of Youth, on how to nurture the creative spirit of its members within the association.

The associations need positive interaction with and from policy makers and relevant government departments, to build effective linkages; and sustainable arrangements with input suppliers and product buyers to lessen the current exploitation, seen through high input costs but low outputs prices, so farmers and hatchery owners receive fair deal for their endeavors.

Even though fisheries are considered a sub-sector of Agriculture, it is not treated the same as other agricultural sectors. The success achieved in tax-free allowances mentioned previously is a good example of achieving parity but there are other areas where this is not the case. Fish farmers and hatchery owners are forced to pay electric

TABLE 2
Bangladesh SWOT analysis results

| Strengths | Weakness |
|---|--|
| <ul style="list-style-type: none"> - There are many motivated fish farmers and hatchery owners in the country - Wide network of non-government organizations where farmers learn about association - Wide extension network in the country - Commercial aquaculture development throughout the country - Having written constitutions and by-laws - Enabling policy and institutional environment - Presence of strong national and international organization to support such as DoF, MoFL, BFRI, Universities, FAO, World Bank WorldFish, Danida, United Kingdom Department for International Development (DFID), and so on. - Strong linkage and communication with mass media; especially television stations, newspapers, popular journals on agriculture and fisheries and online newspapers - Moderate linkage with input providers and product buyers - Able to negotiate better price for its members products - Motivated members with positive feelings towards the associations - Democratic culture, financial transparency, participatory attitude, goodwill, and adherence by members with constitution, rules and regulations of the associations - Occasional meetings and discussion with high level policy makers (e.g. Minister and Secretary of MoFL and Director and DGs of DoF) - Able to create a good product branding for their products - Able to assist members to take part in different training programmes and receive technical support from government organization and NGOs - The associations have sufficient savings to assist its members in emergencies, fund regular meetings, the AGM, social gatherings and an annual picnic | <ul style="list-style-type: none"> - Too many and complex functions and objectives - Management and decision taken remotely from members - Tendency for a few rich and powerful farmers and politicians to capture benefits - The linkage with financial organizations (bank, insurance etc.) is the weakest. - Inadequate finance and excessive operational costs - Weak management and capacity building - Presence of the representatives of the association at the policy level is almost non-existent - Farmers lack of trust in the leader - Membership fee is very high which limit small farmers to becoming members - Heterogeneity among the farmers - Lack of educated farmers - Lack of any remarkable achievements - Lack of women members in association executive body as well as general members - Lack of contact with other associations - Weak linkage with government organizations – MoFL, DoF, MPERM and so on - Not very well linked with the science and technology institutions e.g. BFRI, Universities and so on - Linkage with NGOs and INGOs like BRAC, CARITAS, Proshika, WorldFish, DfID, Winrock International, Danida, Swisscontact is very weak. - Inability to negotiate input (fish meal, soybean, brine shrimp, vitamins, mineral etc.) and output (table fish, fish seeds – spawns, fry and fingerlings etc.) prices with stakeholders - Lack of connection with similar integration association - Lack creditability and transparency - Farmers are scattered - Lack of leadership and capable people - Unwillingness to increase the number of the members - Lack of written constitution - Unwillingness to pay the regular membership fee from some of the members to the association - Lack of visible incentives - Lack of proper statistics at government level - Lack of incentive to join an association |
| Opportunities | Threats |
| <ul style="list-style-type: none"> - Increase the members and coverage - Broaden the scope of the association - Smooth technology transfer - Act as extensions agents - Act as catalyst for technology and information transfers - Media between farmers and government - Organize combined input collection in a group - Organize output marketing in a group - Linkages with international and other national associations - Exchange knowledge and transfer technology from other countries - Bargain for the benefits of its members - Emerging commercial aquaculture development in Bangladesh - Assist government to define fisheries development plans - Supply and manage the members access to credit - Training and capacity building initiatives and develop model farmers - Seeking donor support to strengthen the development of associations - Availability of existing support structures such as government research stations, extension and training institutions - Representing the interests of all, collectively - Voice of farmers in key policy debates and processes - Providing primary production, processing and marketing of agricultural products, or related services - Introducing members to global value chains | <ul style="list-style-type: none"> - Direct government interference in management of associations - Potential stimulus to competition with private sector enterprises - Potential competition with non-government organizations - Government bureaucracy, corruption and complex procedures - Lack of government support - Unfavorable political and economic environment - Changes in government policy |

bills as industrial users, for example, at a rate of BDT8.00 per unit, which is much higher than other agriculture sectors (at BDT2.50 per unit). Despite tireless effort from all fish farmer and hatchery owner associations from different districts, the Ministry of Power, Energy and Mineral Resources of Bangladesh will not allow farmers and operators to pay their electric bills under the agriculture category. Members of fisheries associations and other fish farmers and hatchery owners see this as failure by the associations. EC members of the association think this is a crucial problem, that could impact the sustainable performance of the fisheries sector, and an obstacle in the sustainable operation of the associations. The consensus was that they need immediate intervention by the Power Division of the MPEMR or perhaps the Prime Minister.

If associations are permitted to be properly represented, at policy framing meetings and project planning workshops, this will assist the sector tremendously, and it will give a large boost in the importance, status and appeal of the associations to current and potential members.

The fisheries associations need suitable credit support from banks and microfinance institutions, to aid cash flow and to boost production, most particularly for small and marginal entrepreneurs, where credit is currently difficult to obtain, or is too expensive. There should be arrangement of institutional credit with simple conditions for fish farmers and fish seed producers, brokered through associations. This would greatly assist associations, by showing positive support, and toward sustainable operation through its satisfied and financially solvent members.

Associations can provide institutional support towards the implementation of government and donor-assisted programs, such as facilitating service delivery (e.g. training, credit, information gathering, and so on), mobilization of local resources, and collective input and output marketing. Associations can also perform crucial roles in members' empowerment at a local level and engagement with policy and service providers by creating higher level structures and building their capabilities. Having identified constraints and opportunities (Table 2), there is need for various support mechanisms, that will support the sustainable operation of associations, presented in Table 3.

CONCLUSIONS AND RECOMMENDATIONS FOR THE WAY FORWARD

Concluding remarks

TABLE 3

Key areas requiring further support for sustainable operation of associations

| Areas requiring further support: |
|---|
| - Functional offices (secretariat); |
| - Economically sustainable associations; |
| - Capacity building; |
| - Engagement of women in membership and management; |
| - Farmer development through training and direct support; |
| - Democratic practices; and |
| - Improvement of service delivery. |

More than 10 percent of the country's population depends directly or indirectly on fisheries for their livelihood, while 60 percent of the national animal protein consumption is met by fish. Aquaculture is increasingly contributing to the significant increases in Bangladeshi fish production, and in fiscal-year 2013-14 the share of inland culture fishes to total fish production was almost 55 percent. The potential of aquaculture to generate significant returns was sufficiently attractive for resource-poor households to take a risk by investing in culture production.

The adoption of better technologies and producing and using quality fish seed would

increase fish production, to meet the protein demands of the growing population, whilst also improving the socioeconomic conditions of rural fish farmers and fish seed producers. Quality seed from fish hatcheries can play an important role in enhancing fish production, by increasing quality and survival rates, not currently achieved due to the use of poor-quality fish seed. Respondents noted that “Fish seed quality always equals profit” and good hatcheries need better infrastructure and suitable branding as a quality producer of seed. Experts, with a large knowledge of Bangladesh aquaculture have, for a long time, stressed the importance of having a forum for fish farmers and hatchery owners. Associations can provide this forum and can work effectively to overcome many of the compliance issues within the fish sector.

In conclusion, there is a strong belief that strengthening and empowering already existing associations, and nourishing the newly formed BFHCA in Bangladesh, would overcome a significant amount of trial and error. All pertinent stakeholders in the broader value chain, including service providers, input and output nodes, research and technology organizations and the public, should come forward to foster and promote fisheries associations. There is a need to learn by doing, of taking some risks, and learning from both the successes and failures, including those of the existing associations. It is noted that strengthening of capacity and organizational development of associations is a slow process and regulated by complex and sometimes contradictory bureaucratic environment. If properly assisted, however, there is an expectation that, in near future, fisheries associations will become a valuable representative of fish farmers and hatchery owners in the country, to the benefit of all Bangladeshi people.

Recommendations for establishing associations and empowering and strengthening the existing associations

Action-oriented recommendations

The factors that influence the performance of an association, such as organizational capacity and resources, leadership and management should be improved through training, capacity development and participation in relevant workshops, seminars; and visits with similar associations to gain practical knowledge and learn from others on how associations are managed. The following actions are recommended:

- 1) Executive member selection procedure should be democratic, and all the members should have equitable access to association benefits.
- 2) The national association should have a local chapter at district or division level which will reduce transaction costs for members to participate in activities arranged and managed by the association.
- 3) There could be 4 levels within a national association:
 - a. National chapter;
 - b. Divisional chapter;
 - c. District chapter; and
 - d. Upazilla chapter.
- 4) There should also be product-based associations, for species including:
 - a. tilapia, pangas, carp, catfish, golda, bagda;
 - b. crab grower/fattener/hatchery owner associations;
 - c. large carp grower;
 - d. live fish providers association; and
 - e. cage fish farmers association.
- 5) Among others, associations should pursue three major objectives:
 - a. seed quality is improved, is supplied in a timely manner, and in sufficient quantity;

- b. feed quality is improved, is supplied in a timely manner and in sufficient quantity; and
 - c. farm-gate prices should be fair and reasonable.
- 6) Associations should enhance and develop close relations among members.
 - 7) Disseminate improved fish hatchery and farming technologies. An association, using its own money and manpower, should arrange regular training and demonstration activities, and extend the extension advisory services to the poor, marginal and struggling fish farmers and hatchery owners, to well-equip them technically and to create and develop their human resources.
 - 8) Existing district or upazila level associations, or local chapters of the BFHCA should conduct surveys on local resources – ponds, farms, hatcheries, involved people, trends and others – and share this information with government and other stakeholders.
 - 9) Associations should have a database of information, that is regularly updated through the association's website, helping members and non-members to search updated information easily.
 - 10) The associations should take some visible initiatives which can motivate and encourage fish farmers and hatchery owners to participate.
 - 11) Associations should actively lobby government, to solve farmers' and hatchery owners' production and marketing problems, deal with members' petitions and provide visibility on the outcomes.
 - 12) Associations should be a bridge between members, to government organizations and NGO authorities, share ideas and guide members to implement national policies.
 - 13) Association should develop a mechanism to provide updated market information and trends to members, through cell phones, webpages and newsletters.
 - 14) Associations should provide data and information on its members, their farm sizes and overall capacity, with location maps and contact information to MoFL, DoF, BFRI and other stakeholders who need to know, whilst also ensuring confidentiality of personalized information.
 - 15) Associations should coordinate with relevant government organizations, NGOs, research institutes and partners to organize a variety of local seminars, conferences, training events and other services for aquaculture farmers and hatchery owners.
 - 16) Associations should seek and discuss effective solutions to control quality, create raw material flows and promote production and export.
 - 17) Associations should coordinate with partners to organize a variety of events and exhibitions to introduce and broadcast their products, particularly during national fish week
 - 18) Associations should cooperate and share information with product buyers - customers and partners from Bangladesh, from the region and globally.

Policy-oriented recommendations

- 1) The MoFL and DoF should work towards strengthening and empowering the fish farmer and fish hatchery owner associations and promote the agenda of the associations through Ministry and Departmental policy.
- 2) The authorities should assist the newly formed BFHCA to complete its registration and other formalities as soon as possible. The present procedure of registering a farmer's organization is complex and lengthy (Box 1). The procedure needs to be streamlined.
- 3) There could be two national level organizations, one for fish and shrimp farmers and one for fish and shrimp hatchery owners, as they have many distinct needs and properties.

- 4) DoF should assist in familiarizing the fish farmers and hatchery owner associations with the Departmental policies and programmes and include the associations in the Department's national network.
- 5) Associations should be allowed to send representative to departmental and ministry level meetings and project planning workshops undertaken by DoF and BFRI, and to increase linkage to universities
- 6) DoF should tailor its development projects and programmes to be coherent with the needs identified by the fish farmers and hatchery owner associations.
- 7) The authorities should assist the associations in establishing international relationships, through such activities as hosting and taking part in international seminars and in global projects, forums and dialogues.

BOX 1**Process to register as an association in Bangladesh**

- First the association should be named by a group of people.
- Application needs to be sent to the Registrar, Joint Stock Companies and Firms (RJSC) for clearing the name.
- After the name clearance (or in the meantime) an ad hoc committee should be constituted.
- The name of the association, its brief objectives along with the names of the members of the ad hoc committee should be published in at least three national dailies, stating that if anyone has any objection regarding these, he/she/they should advise the Ministry of Commerce within 15 days of the publication.
- The application with the three paper cuttings and all the particulars of the association should then be sent to the RJSC for approval.
- If RJSC approves it, the application goes to the Secretary of the Ministry of Commerce to be registered under Trade Organization Ordinance (TOO) 1961.
- However, Ministry of Commerce needs the positive reports of the Special Branch (SB) of Police on each and every member of the ad hoc committee and the clearance from the Federation of Bangladesh Chamber of Commerce and Industry (FBCCI).
- Usually an association should receive the TOO certificate within a few months of the application. However, the special branch of police and FBCCI, most of the times, delays the procedure for months to even years.
- According to the Law of Trade Organization, if FBCCI does not provide a clearance certificate within 60 days, the Ministry of Commerce would assume that it has no objection.
- In case of unwarranted delay (as in most cases), the applicants should write to the Secretary, Ministry of Commerce to appeal for speeding up the process.

Women's milkfish farmers association, Binmaley Rural Improvement Club (BRIC) in the Province of Pangasinan, the Philippines

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Gonzal, A.C. 2020. Women's milkfish farmers association, Binmaley Rural Improvement Club (BRIC) in the Province of Pangasinan, the Philippines. *In* M.R. Hasan, P.B. Bueno & R.A. Corner, eds. *Strengthening, empowering and sustaining of small-scale aquaculture farmers' associations*, pp. 81-96. FAO Fisheries and Aquaculture Technical Paper No. 655. Rome, FAO. 190 pp.

ABSTRACT

In evaluating the strengths, weaknesses, opportunities and threats to fish farm associations, and the critical attributes of strength, empowerment and sustainability that make for a successful association of farmers, this study evaluated a rural Philippine village, the base of an association of women milkfish (Chanos chanos) farmers. It was formed under a national programme called Rural Improvement Club that promoted the welfare of women through the improvement of livelihood opportunities. Formed in 1989, with five members, the Club has a current membership of 120 including two males. It has operated continuously since then, diversifying from producing table-sized fresh milkfish for home consumption and sale in the neighborhood to simple processing and some value addition by deboning, marinating and smoking; most recently to processing a range of products for the wider national market, as well as to markets abroad with large Filipino communities. Growth in the association has been steady, and they now also source additional fish inputs from milkfish farmers in the area, whose farms they accredit for product quality and safety. Information for the case analysis were derived from key informant interviews and group meetings. The attributes of strength, empowerment and sustainability were found to be largely interlinked. Indicators of organizational strength include trust and mutual interest among leaders and members. A unique factor is the continuous tenure of its leader since its founding. She and the other pioneering members, who have also remained officers, adhere to good management practices heavily infused by interpersonal relations. It may not be consistent with the democratic procedures for election of leaders more typically required for strong and sustainable associations, but the members' tacit acceptance or approval of the leader's continuing tenure, uninfluenced by coercion, indicates that this mode of leadership can be useful and contribute to its strength; although mentoring is required for potential successors. Indicators of empowerment include the institutional links with important technical, academic, regulatory, policy and mass communication organizations.

The linkages enhance the capacity and build up the social capital of the association. The policy, regulatory and development agencies have made the association competitive, accelerated its growth, and opened up various opportunities. Participation in organized activities, workshops, mass communications, and product promotions have empowered the association. The achievements by the association suggest a positive relation between empowerment and sustainability. Empirical evidence of the association's sustainability, other than having continuously operated since 1989, is their progress from production to processing. The results suggest that an empowered association is a sustainable one. Initiating and sustaining the association's projects as well as its organizational functions depend much on its network of linkages with the other major stakeholders and on its social license to operate, largely granted by the community. A set of policy and action-oriented recommendations are drawn from the results.

INTRODUCTION

The Binmaley Rural Improvement Club (BRIC) is a women's organization based in Barangay (village) Buenlag, Binmaley municipality of the Province of Pangasinan in the Philippines (Figure 1). The association is engaged in a small-scale milkfish (*Chanos chanos*) pond farming activity, typical of the area, with the harvest processed into various product forms. The association has a long history of ventures into various small business opportunities but finally found its niche in the small-scale milkfish pond aquaculture and processing. Unacquainted with the power of entrepreneurship, the members of the organization were unaware of their potential as agents for economic empowerment.

The organization was established in 1989 with 5 women as pioneering members and later officially registered as an association of 15 women members, with duly elected officers and an organizational structure, defined in Figure 2. Initial engagement and activities were in backyard scale nursery and grow-out of milkfish (Figure 3) and sale

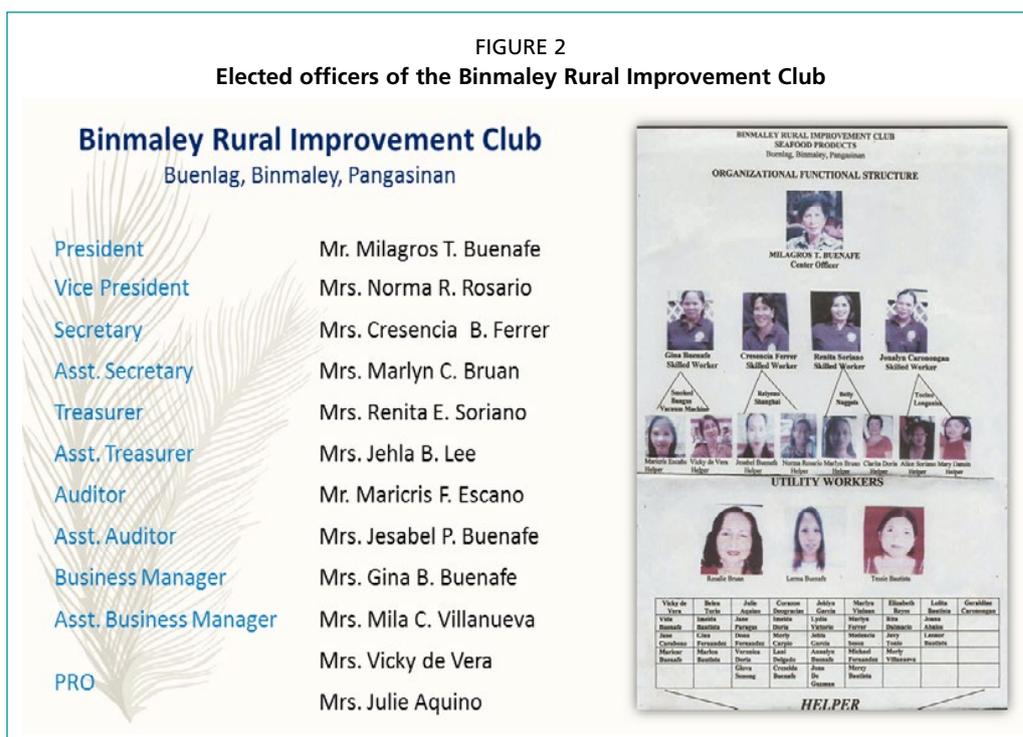
FIGURE 1
Location of Binmaley Rural Improvement Club, women's milkfish association, the Philippines



FAO Disclaimer: The designations employed and the presentation of material in this map do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Source: Binmaley, Pangasinan. Google Maps and <https://en.wikipedia.org/wiki/Pangasinan>.

FIGURE 2
Elected officers of the Binmaley Rural Improvement Club



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of the harvest to the neighborhood. After a short training, the members started home-based processing, on deboning, marinating and smoking milkfish harvested from the association’s own farm (Figure 3) and selling the product to friends and neighbors.

Challenged by the business opportunities, as well as their stated mission and vision to help alleviate the living condition of women in the community, the members persuaded other women in the nearby community to join the organization. BRIC’s current membership is now 120 (85 active + 35 inactive). The benefits from the processing of milkfish products and milkfish pond aquaculture were the selling points of the association to persuade other women to join. The association has been featured as a success story in print and broadcast media. They have participated in several local and national agri-business and trade exhibitions. BRIC received several recognitions from the provincial and national governments for the “successful promotion of livelihood and sustainable development relevant to fisheries and aquaculture”.

A study of Club was conducted to identify the internal and external factors influencing the strength, weakness, opportunities and threats to this women’s organization and derive policy and action-oriented recommendations for strengthening, empowering and sustaining fish farmers association in general.

Key informant interviews were conducted with the president and finance officer and the key provincial and municipal agriculture officers in Lingayen and Binmaley, Pangasinan, staff of the Pangasinan State University College of Fisheries, and other farmers organizations.

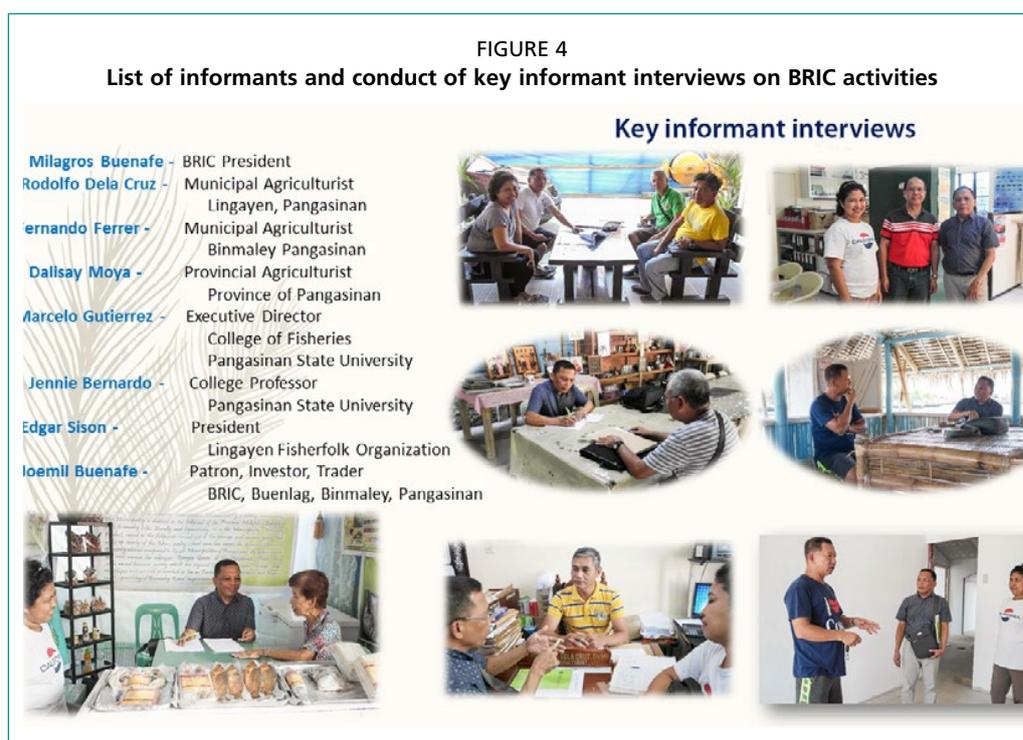
FIGURE 3
Initial milkfish nursery and grow-out farm (top) and BRICs grow-out farm (middle) in Binmaley, Pangasinan, the Philippines, and products produced (bottom)



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The interviews also tried to assess the association's linkages to relevant government stakeholders and partners that have been aiding the association in various ways (Figure 4).

THE SOCIAL AND ECONOMIC CONTEXT OF THE ASSOCIATION

Aquaculture has long history in the Philippines with the earliest fishpond operation in brackish water growing milkfish. For a very long time, aquaculture in the country was virtually synonymous with milkfish culture, specifically in brackish water ponds, relying on natural food. The 2015 Selected Statistics on Agriculture (SSA), an annual statistical report published by the Philippine Statistics Authority (PSA) provides a five-year data series (2010-2014) for selected macroeconomic indicators. This report describes that in 2014, the country's Gross National Income (GNI) grew by 5.78 percent. Gross Domestic Product (GDP) registered a 6.13 percent increment. Gross Value Added (GVA) in agriculture and fishing went up by 1.60 percent. This sector accounted for 10 percent of the GDP. Further, the fisheries subsector recorded a 0.45 percent reduction in output. Downtrends in production were noted among the major species such as milkfish, tilapia, round scad and seaweed. Based on this report, the fisheries sub sector production from aquaculture was 2.34 million tonnes in 2014, within which milkfish production was 390 200 tonnes. The value of milkfish production from brackish water ponds in 2014 was estimated at 35.6 billion pesos, at current prices.

The Province of Pangasinan is a major fish supplier in Luzon, and a major producer of salt in the Philippines. It has extensive fishponds, mostly for raising bangus or "milkfish", along the coasts of the Lingayen Gulf and the South China Sea. Pangasinan's aquaculture includes oyster and sea urchin farms. Salt production is also a major industry as an ancient tradition inspired from Egypt. The Provincial Information Office describes Pangasinan as the third largest province in the Philippine Archipelago, and derives its name from salt or "asin" in the vernacular. Owing to the rich and fine salt beds, which were the prime source of livelihood for the province's coastal towns, PanagASINan or "Pangasinan" which means "where salt is made"

became so named. The province is crescent-shaped and occupies 536 818 hectares of land area which constitutes almost one-half (41.8 percent) of the total land area of Region 1 and 1.8 percent of the total area of the Philippines. Composed of 4 cities and 44 municipalities, it is bounded on the north by the Lingayen Gulf, La Union and Benguet, on the north-east by Nueva Vizcaya, on the east by Nueva Ecija, on the south by Tarlac, and on the west by Zambales and the China Sea. Agriculture remains a major source of income for much of the population. Aquaculture is also popular in some areas, where farmland has been converted to variated squares of artificial ponds for fish rearing. As the demand for particular fish stocks rose and fell, fishpond owners have adapted by sticking to traditionally favored and stable growing fish species, like the bangus or milkfish, the malaga and prawns. With agriculture currently mobilizing more than half of the local labor force, the current administration has seen the need to boost its efforts in this area (Pangasinan Provincial Information Office, 2014)

The Women's BRIC association portrayed their hometown, Binmaley, as a predominantly fishing community, dubbed as the fishbowl of the province. Milkfish production variously feeds the town population (directly, or indirectly through income generation) because it is the prime product raised in fishponds carved from swamps and natural pools within the land area of this municipality. Milkfish aquaculture production raised the economic status of Binmaley above all the 4 cities and 44 municipalities in Pangasinan Province. Hence, this achievement subsequently earned the municipality the title of "Bangus Queen" of the Philippines.

THE POLICY AND INSTITUTIONAL CONTEXT OF THE ASSOCIATION

There are two policies (Acts) and one national advocacy movement that are directly relevant to the case study, namely, the Magna Carta for Small Farmers, the Magna Carta for Women and the Rural Improvement Clubs of the Philippines.

The Magna Carta for Small Farmers (Republic Act 7607) aims at realizing equitable distribution of benefits and opportunities through the empowerment of the small farmers. The law recognizes the country's responsibility for the welfare and development of small farmers by giving them support in attaining their socioeconomic goals. It encourages the participation of small farmers, farm workers, farmers' cooperatives and organizations in the planning, organization, management and implementation of agricultural programs and projects.

Chapter II of the act provides that the small farmers have the right to form into an organization and be represented in government agencies' board. As an organized group, the small farmers will be able to purchase inputs at lower cost, obtain fair prices for their products and be entitled to government subsidies and farm inputs. Further, they can be represented in boards of relevant government agencies.

The farmers' rights and obligations are also specified. Their rights include: (1) support to the price programme; (2) ensure market; (3) be covered with social security; (4) avail of credit system at minimal interest rates and minimum collateral requirements; (5) avail of farm inputs and services; (6) be heard and represented in the government; (7) be updated on market prices and demands, policies and farming practices; (8) benefit from natural resources; (9) assume certain processing and marketing functions of government agencies; (10) pursue appropriate education and skills development; and (11) avail of technical assistance from government agencies.

Their obligations are to: (1) establish farmers' organizations; (2) adopt recommended farm practices and inputs; (3) comply with the terms and conditions in availing of assistance; (4) adopt recommended production and marketing strategies; (5) provide reasonable prices and quality products; (6) share labor and material resources to community-based activities; (7) meet local demand requirements to avert shortage that may necessitate importation; (8) participate in conservation, protection and development of national patrimony; (9) pay all fees, license fees and taxes; (10) contribute

to government insurance and social security programs; and (11) undertake self-help community development projects (FAO, 1992)

The Magna Carta for women (Republic Act No. 9780) recognizes the economic, political, and sociocultural realities affecting women's current condition, the State affirms the role of women in nation building and ensures the substantive equality of women and men. It promotes empowerment of women and pursues equal opportunities for women and men and ensures equal access to resources and to development results and outcome.

Chapter V, Sec. 20 describes the empowerment of women and State to recognize the contribution of women to food production its sustainability and sufficiency. To further address this in relevance to the role of women in fisheries and food production sector, the State ensures:

- 1) Right to Resources for Food Production. - The State shall guarantee women a vital role in food production by giving priority to their rights to land, credit, and infrastructure support, technical training, and technological and marketing assistance. The State shall promote women-friendly technology as a high priority activity in agriculture and shall promote the right to adequate food by proactively engaging in activities intended to strengthen access to, utilization of, and receipt of accurate and substantial information on resources and means to ensure women's livelihood, including food security;
- 2) Equal rights to women to the enjoyment, use, and management of land, water, and other natural resources within their communities or ancestral domains;
- 3) Equal access to the use and management of fisheries and aquatic resources, and all the rights and benefits accruing to stakeholders in the fishing industry;
- 4) Equal status shall be given to women and men in the issuance of stewardship or lease agreements and other fishery rights that may be granted for the use and management of coastal and aquatic resources. In the same manner, women's organizations shall be given equal treatment as with other marginalized fishers organizations in the issuance of stewardship or lease agreements or other fishery rights for the use and management of such coastal and aquatic resources which may include providing support to women-engaged coastal resources;
- 5) There shall be no discrimination against women in the deputization of fish wardens;
- 6) Women-friendly and sustainable agriculture technology shall be designed based on accessibility and viability in consultation with women's organizations;
- 7) Access to small farmer-based and controlled seeds production and distribution shall be ensured and protected;
- 8) Equal rights shall be given to women to be members of farmers' organizations to ensure wider access to and control of the means of production;
- 9) Provide opportunities for empowering women fishers to be involved in the control and management, not only of the catch and production of aquamarine resources but also, to engage in entrepreneurial activities which will add value to production and marketing ventures; and
- 10) Provide economic opportunities for the indigenous women. Particularly, access to market for their produce. Further, Sec. 23. Right to Livelihood, Credit, Capital, and Technology. - The State shall ensure that women are provided with the following: (a) Equal access to formal sources of credit and capital; (b) Equal share to the produce of farms and aquatic resources; and (c) Employment opportunities for returning women migrant workers taking into account their skills and qualifications

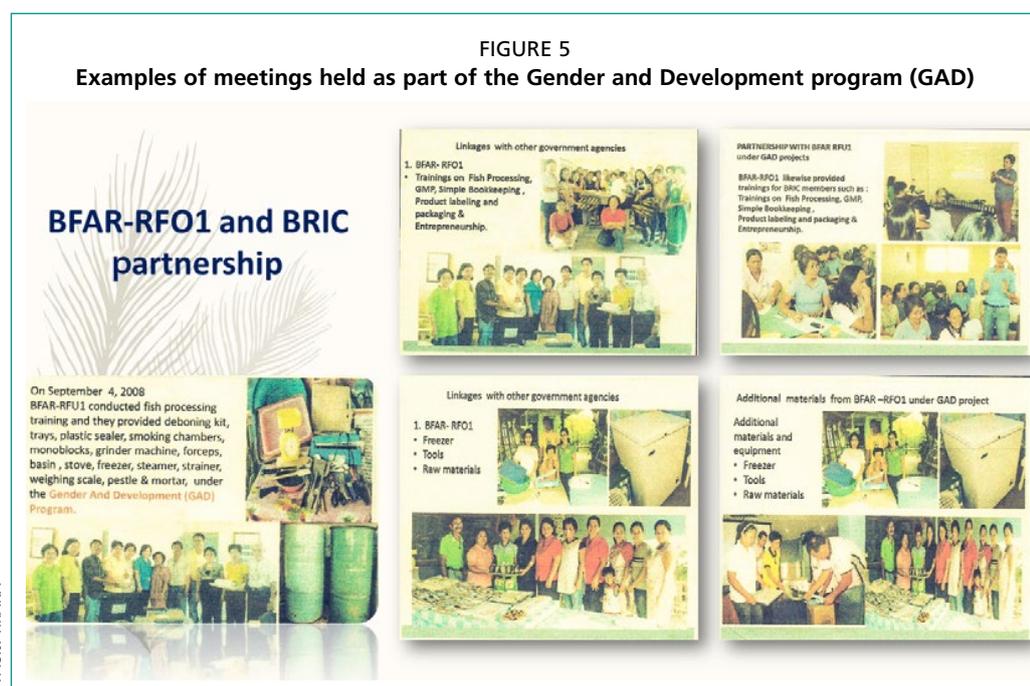
The Rural Improvement Clubs of the Philippines (RIC) is a nationwide non-government organization which is rural or village (barangay)-based. It aims at uplifting the living standard of its members and making them effective and productive partners

of the government in community development. It is initially supported by the Local Government Unit (LGU) and the Department of Agriculture. RIC's promotion of rural development started in 1953 when the Bureau of Agricultural Extension was established. Its objectives are (a) Uplift the living condition of rural women; (b) Gain self-confidence and skills which are essential to self-reliance; and (c) Gain experience in simple livelihood operations (Rural Improvement Club of the Philippines, 2016)

The agencies and institutions directly or indirectly linked to the association includes the Bureau of Fisheries and Aquatic Resources, Regional Fisheries Office 1 (BFAR-RFO1), the Department of Trade and Industry in Region 1 (DTI-Region 1), the Department of Science and Technology (DOST), the Department of Labor and Employment's (DOLE) Technology Education and Skills Development Authority (TESDA), the Provincial, Municipal, and Local Government Unit, BFAR-National Integrated Fisheries Technology Development Center (BFAR-NIFTDC), and the Pangasinan State University - College of Fisheries.

The Bureau of Fisheries and Aquatic Resources – Regional Fisheries Unit 1 (BFAR-RFO1) has the mandate to support the activities of farmers groups in terms of training, extension, research and development including project partnership. BFAR-RFO1 extends technical training on milkfish production, processing, packaging, product labeling including entrepreneurship. It provided BRIC with fish processing kit and equipment through their Gender and Development Program (GAD) (Figure 5).

The Department of Trade and Industry (DTI) in Pangasinan is charged with creating a business-friendly environment conducive to the growth of enterprises and supportive of fair and robust trade in goods and services, within and outside the Philippines. DTI is a coordinating agency for all government activities related to trade, industry and investments, a promotional machinery for further trade and investments, and a regulatory body to ensure that fair competition prevails. Its key result areas are to: 1) attract and direct investments to areas leading to balanced agro-industrial developments; 2) reinforce the country's competitive advantage in the world markets; and 3) ensure that the benefits of economic progress reach the countryside and become every Filipino's gain. DTI provides Shared Service Facilities (SSF) Project. The SSF Project is a major component of the Micro, Small and Medium Enterprise



Development Program which aims to uplift economic conditions in the countryside by providing machineries and equipment to deserving MSMEs through SSF Cooperators (DTI-Bureau of Small and Medium Enterprise Development and DTI-Region 1). DTI-Region 1 provided the BRIC with Shared Service Facilities (SSF) for milkfish processing and training in fish processing for women in the Municipality of Sta. Barbara (Figure 6).

The Department of Science and Technology, Region 1 (DOST-Region 1) provides awareness on food safety that involves the deployment of food safety experts to food processing firms to advise on improving their compliance to Good Manufacturing Practices (GMP) standards. It benefitted BRIC in terms of a) an improved plant layout, b) better GMP compliance, c) process standardization including training opportunities on entrepreneurship, book-keeping and labeling (Figure 7).



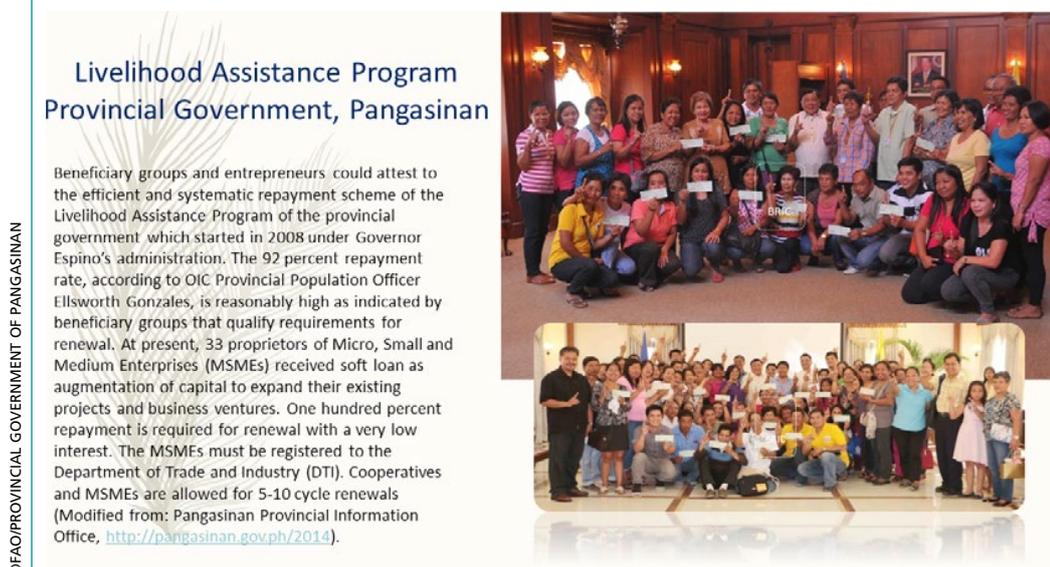
FIGURE 8
BRIC and Department of Science and Technology linkage on Good Manufacturing Process (GMP) and improvement of packaging



The Technology Education and Skills Development Authority (TESDA) of the Department of Labor and Employment is the government agency tasked to manage and supervise technical education and skills development (TESD) in the Philippines. It was created by Republic Act 7796, referred to as the “Technical Education and Skills Development Act of 1994”. TESDA provided BRIC officers with several training programs relevant to activities, management and operation, health and sanitation and food safety (Figure 8).

The Livelihood Assistance Program (LAP) of the Provincial Government and Local Government Unit (LGU) of Pangasinan, launched in October 2008, is designed to aid Pangasinense on their livelihood ventures and entrepreneurial activities. BRIC availed of this programme and was among the most responsible beneficiaries that delivered efficient and systematic loan repayment (Figure 9).

FIGURE 9
BRIC is recipient of Livelihood Assistance Program from the Provincial Government of Pangasinan



The Pangasinan State University - College of Fisheries provided initial training on milkfish aquaculture and fish processing. The university helped and introduced BRIC to relevant stakeholders and government institutions for the needed support and certifications.

The BFAR-National Integrated Fisheries Technology Development Center (BFAR-NIFTDC) is accessible to BRIC for consultation, research results and integrated fisheries technology development training.

ATTRIBUTES OF THE ASSOCIATION

Results from assessment of the strengths, weaknesses, opportunities and threats (SWOT Analysis) for the Binmaley Rural Improvement Club (Table 1), and the key informant surveys and stakeholders meeting, which identified the factors associated with the strength, empowerment and sustainability (SES) of the Club are reported in this section.

TABLE 1
SWOT analysis results of the Philippines

| Strengths | Weakness |
|--|---|
| <ul style="list-style-type: none"> - Functional organization structure with duly elected and competent officers - Well organized business structures with qualified skillful workers and well-trained utility helpers - Clear and concise mission to produce quality food products that passed national standards - Core values of Benevolence, Resilience, Integrity and Credibility - Moral support/inspiration from family and community - Support from the Local Government Unit (LGU) - Training, technical support and partnership with BFAR-Region 1 - Accreditation and technical support from the provincial trade and industry office (DTI) - Research and development support from local university, PSU - Access to national research institution, BFAR-NIFTDC - TESDA competency assessment and certification on food processing - Laws on the empowerment of women and small farmers' organization - Efficient and systematic repayment of loan | <ul style="list-style-type: none"> - Limited production capacity to meet increasing products demand - Limited financial resources for expansion - BFAD, HACCP and FDA accreditations as pre-requisite for exportation - Limited capacity to participate in international agriculture and food products exhibitions - Insufficient qualification in the global food manufacturers and exporters association - A number of inactive members - Inconsistent commitment of some |
| Opportunities | Threats |
| <ul style="list-style-type: none"> - Access, engagement and participation in livelihood initiatives - Membership in the national and local food manufacturers and traders' association - Market expansion and product value addition - Regular participation in the local and national agri-business exhibitions - Linkages to relevant government and private industry sector - Upgrading fish processing skills and improvement of product labelling and packaging - Extra income for rural women - Income from fish processing helps sustain the aquaculture project - Role model for other women to engage in food processing ventures | <ul style="list-style-type: none"> - Strict requirements and compliance for exportation of food products - Climate change effect on raw materials availability and product quality - Extreme weather events affecting production and quality of fish - Non-payment of loans or dues - Members' non-remittance of consignment sales. - Inconsistent production of natural food affecting milkfish growth - Concern over salmonella contamination of fish and fishery products |

SES ANALYSIS

Strength

- BRIC is affiliated with the Pangasinan Rural Improvement Club (PRIC) which is the provincial chapter of the organization. The local community council (Sanguniang Barangay) through the municipal agriculture office and the PRIC assisted in the formation of BRIC and election of officers from among the 15 pioneering members.

- Participation to the capacity building programs, like technical trainings of officers and members including relevant professionalization initiatives conducted by relevant stakeholders, benefitted the association.
- The association membership has expanded through the years from 15 original members to 120 current members. Majority of the members are residents of Barangay Buenlag, where the association is located. The rest are from the two neighboring communities.
- Transparency and accountability have been two norms to the association. Income statements, production reports, tax payments and income distribution audits are accounted for yearly.
- Personal communication with the president revealed that women's passion, interests and challenge to innovate in preparing quality foods for the family provided them greater strength to succeed in the milkfish processing enterprise.

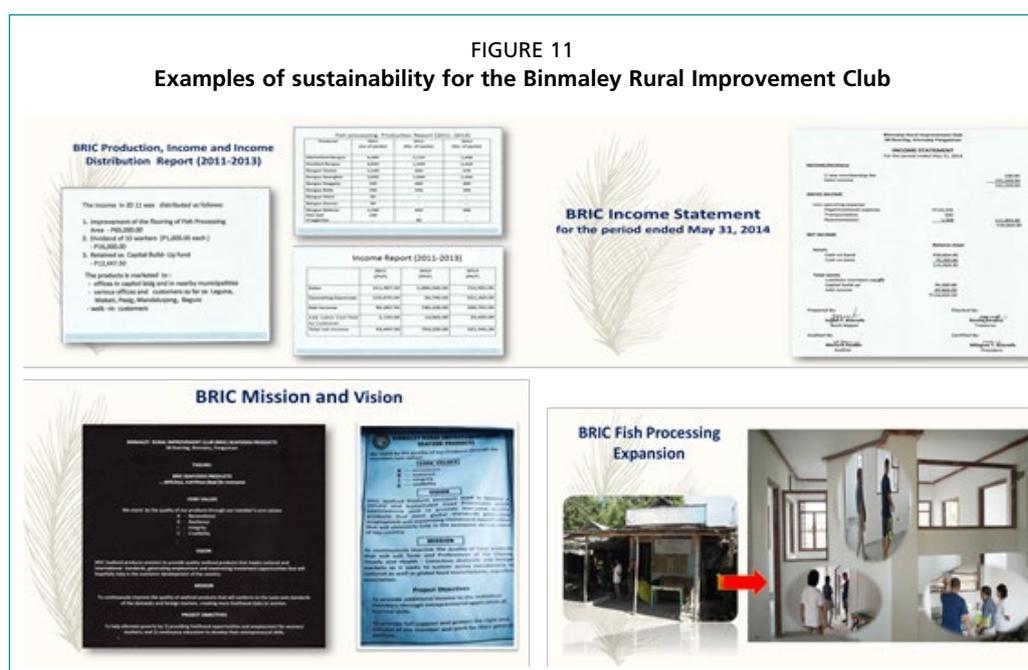
Empowerment

- Registrations, certifications, and legal license are standard operating procedures followed by the association (Figure 10)
- Official linkages and partnership with government agencies directly related to the activities of the association including certifications and regular consultations are sustained.
- Presence in the mass media - magazine, newspaper and television presented as success story on the role of women in sustainable food production, economic development and nation building (Figure 10) and <https://www.youtube.com/watch?v=Y7IBtYUQINQ>)
- Close collaboration and consultations with the College of Fisheries, Pangasinan State University (PSU) and the National Integrated Fisheries Technology Development Center, Bureau of Fisheries and Aquatic Resources (BFAR-NIFTDC) on research and development interest. The BFAR-Region 1, assist BRIC on water quality, fish disease prevention and milkfish aquaculture technology.
- The association offers milkfish supplier/traders 2 percent bulk sales service-charge as compared with commercial consignee's 5 percent service charges. Commercial consignee payment is 1-2 days after fish delivery while BRIC pays outright upon delivery on a scheduled harvest basis.



Sustainability

- BRIC has been in operation for 28 years now (1989-present). The operation of the association has significantly improved due to innovative practices in the milkfish processing and good management strategies including teamwork among the greater majority of members.
- The membership trends from 15 to 50 to 85 into 120 concurrent membership (118 females + 2 males) indicates sustained interest in the association. However, there are only 85 active members and the other 35 are half-hearted.
- Financial assets are derived from regular membership fees and revenues after tax from the aquaculture and fish processing ventures.
- Financial resource allocation, disbursement, and use are accounted, audited and published yearly. Financial management including income distribution are discussed among members during annual meeting or whenever necessary (Figure 10).
- The association's mission is to improve the quality of local food-fish products and meet domestic market demand and seek membership in the national and global food manufacturer/exporters association. The association envisioned to generate employment and investment opportunities to benefit the economic development of the country (Figure 11).
- Improvement and upgrading of facilities to comply with the strict product quality demand (Figure 11).



CONCLUSION

Based on the key informant interviews conducted and the SWOT analysis, the Binmaley Rural Improvement Club (BRIC) attains a high status in terms of strength, empowerment and sustainability. The SES status, established from the key indicators of each attribute, showed the following:

- **Strong:** BRIC possesses the important indicators of this attribute, including trust, satisfaction and mutual interest among leaders and members. It is important to note that BRIC has not undertaken democratic election or notice of change of officers from the time the association was established. Nonetheless it has become stronger through the years and expanded its network of institutional linkages.

The tradition of the association is highly influenced by members' behavior towards the club and the community, an important trait that takes some time to develop and nurture, but which then becomes a source of strength for the group. The pioneering officers and members have adhered to good management practices heavily infused by interpersonal relations and caring for each other. Notable is the matriarchal leadership by its now ageing president, which appears to have helped the association through its years of struggle and growth. It may not be consistent with the democratic procedure of electing an association's leader, but the members' tacit acceptance or approval of the leader's continuing tenure – uninfluenced by coercion – indicates that this mode of leadership can be useful and contribute to its strength. The Women's group does, however, need to overcome the potential adverse impact of the leader neglecting or failing to develop potential successors.

- **Empowered:** The assessment reveals the many significant indicators that empowered and continue to empower the association. Notable among the indicators are the institutional links with important and relevant agencies. The relationships, which include technical, regulatory, policy and, public relations matters, are synergistic; they enhance not only the capacity but also build up the social capital of the association. The policy, regulatory and development agencies have made the association competitive, accelerated its growth, and opened various opportunities. Results showed that increased participation in organized activities, workshops, mass communications, and product promotions have empowered the association.
- **Sustainability** analysis is the foundation for BRIC's longevity, who will be celebrating 30 years of continuous operation in 2018. The significant achievements by the association in terms of most of the indicators of empowerment suggest a positive relation between empowerment and sustainability. The notable characteristic of BRIC's members is their dedication in pursuing the association's mission and vision. Their individual or household interests are aligned with those of their community. This sense of community belonging, and civic mindedness has been the guiding force to the association's activities.

Empirical evidence of the association's sustainability, other than their having continuously operated since 1989, is their progress in production to processing. A summary of BRIC's processed milkfish production between 2008 and 2013, based on their annual report, partially summarized in Figure 11, is presented in the production table (Table 2). From an initial processed milkfish production capacity of 1 500-3 150 kg/month with raw materials from the association's small farm (0.5ha) and then also from milkfish suppliers, the output has now reached 8 000-10 000kg/month, excellent growth and supporting sustainability of BRIC. A new higher production target of 10 000-15 000 kg/month is predicated, depending on their obtaining raw materials from accredited milkfish farms, from 10 to 15 ha of ponds in the towns of Binmaley and Labrador. Accreditation of raw material suppliers reduces the likelihood of producing fish for processing that are contaminated with antibiotics and pesticide residues as well as salmonella.

Overall, the results suggest that an empowered association is a sustainable one. Initiating and sustaining the association's projects as well as its basic organizational functions depends on its network of linkages with the other principal stakeholders, providing social capital; and significantly, on its social license to operate, with the latter granted by the community.

There are a number of other fish farmer associations located within the Municipalities of Binmaley and Lingayen (Table 3), all doing good work in the development of aquaculture.

TABLE 2
Milkfish product growth between 2008 and 2013 for the Binmaley Rural Improvement Club

| BRIC's milkfish processing production data (no. of packages) | | | | | | |
|--|-------|-------|-------|-------|-------|-------|
| Products | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| Marinated bangus | 1 180 | 1 730 | 765 | 4 460 | 2 110 | 1 630 |
| Smoked bangus | 1 149 | 1 649 | 1 680 | 3 920 | 1 549 | 1 610 |
| Bangus tocino | 618 | 1 130 | 160 | 2 140 | 920 | 670 |
| Bangus shangai | 76 | 1 030 | 750 | 2 000 | 1 060 | 1 030 |
| Bangus nuggets | 400 | 860 | - | 230 | 860 | 400 |
| Bangus belly | 450 | 310 | - | 250 | 550 | 450 |
| Bangus head | 239 | 400 | - | 50 | - | - |
| Bangus longanisa | - | 60 | - | - | 60 | - |
| Bangus relleno | - | - | 1 276 | 2 160 | 860 | 860 |
| Bangus siomai | - | - | - | 50 | - | - |
| Fish ball | - | - | - | 130 | - | - |

Source: Milagros Buenafe (personal communication).

TABLE 3
List of fish farmers association in the municipalities of Binmaley and Lingayen

| Municipality: Binmaley | Municipality: Lingayen |
|--|--|
| 1. Integrated Small Fishpond owners and Leases MPC | 1. Lingayen Federation of Fisherfolk Organization (UFFO) Inc. |
| 2. Barangay Industrial Enterprise Coop (Biec) | 2. Barangay Fisherfolks and farmers Association of Domalandan Center, Inc. |
| 3. Southern Barangays MPC (Pallas) | 3. Barangay Domalandan East Fisherfolk and Farmers Association, Inc. |
| 4. Manat Fisherfolks Association | 4. Libsong West Fisherfolk Association, Inc. |
| 5. Asenso Dupo Fisherfolks Association | 5. Capandanang Fisherfolk and Farmers Association, Inc. |
| 6. Biec Riverside Fisherfolks Association | 6. Pangapisan Sur Fisherfolks Association, Inc. |
| 7. Lomboy Fishermens Association | 7. Malimpuec Lingayen Fisherfolks Association, Inc. |
| 8. Lomboy Mothers Association | 8. Bantay Isla Fisherfolks Association, Inc. |
| 9. Binmaley Rural Improvement Club | 9. Barangay Tumbar Fisherfolks and Farmers Association, Inc. |
| 10. Sabangan Rural Improvement Club | 10. Irrigators and Fisherfolks Organization of Libsong East |
| | 11. Barangay Fisherfolks and Farmers Association of Domalandan West, Inc. |
| | 12. United Barangay Sabangan Farmers and Fisherfolks Association, Inc. |
| | 13. Fisherfolk Association of Barangay Basing Lingayen Pangasinan, Inc. |
| | 14. Samahan ng mga Magsasaka at Mangingisda ng Barangay Namolan, Inc. |
| | 15. Maniboc Fisherfolk Association, Inc. |
| | 16. Barangay Naguelguel Fisherfolks Association, Inc. |
| | 17. Farmers Fisherfolks and Livestock Raisers Association of Malawa, Inc. |
| | 18. Baay Fisherfolk, Farmers and Livestock Raisers Association, Inc. |

Source: Jennie Fernandez (pers. com.).

RECOMMENDATIONS

The policy-oriented recommendations from the case study are the following:

- A regional initiative to intensify empowerment of small-farmers organization.
- Strong government action to support small holders to participate effectively in regional as well as international aquaculture product processing and markets.
- Establish a regional food safety and food quality board and develop appropriate quality standards.
- Review existing compliance to regulations on aquaculture product registration and quality control
- Provide technical as well as credit assistance to local fish product processors to achieve international standards.
- Promote the global competitiveness of local fish processors.

- Promote innovative and responsible food fish production.
- Support the empowerment of women in the fisheries sector.

Actionable recommendations include:

- Specific to the Club, an effort should now be made to develop and groom potential future leaders. In this regard, technical training in the various aspects being provided to the association should be complemented by a programme of professionalization.
- Government should facilitate farmer associations' efforts at building strong linkages and collaboration with the private industry sector.
- Promote the adoption of good management and innovative practices, which should be anchored to culture and traditions.
- In line with the preceding recommendation, give priority to research focusing on developing innovative practices built on indigenous knowledge in fish farming and fish processing.

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Strengthening, empowering and sustaining associations of small-scale aquaculture farmers with special focus on ornamental fish farmers associations in Sri Lanka

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Weerakoon, D.E.M. 2020. Strengthening, empowering and sustaining associations of small-scale aquaculture farmers with special focus on ornamental fish farmers associations in Sri Lanka. In M.R. Hasan, P.B. Bueno & R.A. Corner, eds. *Strengthening, empowering and sustaining of small-scale aquaculture farmers' associations*, pp. 97-132. FAO Fisheries and Aquaculture Technical Paper No. 655. Rome, FAO. 190 pp.

ABSTRACT

In Sri Lanka, the rearing of ornamental fish has a long history, dating as far back as the early 1930s; for most this as a hobby by enthusiasts in Colombo and its suburbs. The industry was commercialized on a small scale by a few entrepreneurs about 50 years ago and has now developed into a thriving export industry, earning valuable foreign exchange for the country and affording profit and employment to many people. Early on this was typically through wild-caught species from marine and freshwater habitats, which eventually posed a conservation issue, and export bans in trade for certain species. This in turn led to captive breeding, initially through a few exporters, who expanded by employing other breeders and on-growers, often exploiting low and middle-income groups in the process. It is therefore, reasonable to assume that the low and middle-income freshwater ornamental fish breeders/farmers decided to form associations, with a view to overcoming some of the problems such associations and their members face. The main objective of the present study was to evaluate the issues facing associations and define how the benefits of being associated could be equitably shared among members and how the farming community as a whole could benefit from being associated. This was achieved through key informant interviews with associations and other groups, an analysis of strengths, weaknesses, opportunities and threats (SWOT analysis), using as a basis a standard questionnaire, and a workshop to verify the outcomes. The critical attributes for successful association are strength, empowerment and sustainability, each of which has several criteria. For the ornamental associations in Sri Lanka the most significant attribute appears to (a lack of) empowerment of these associations. The study proposes a means of improving associations ability to operate, through clustering of association within a district, and possibly formalizing this through development of small to medium enterprises (SMEs). Government has a critical role to play in such development, by developing national policy that focuses on the ornamental aquaculture trade, uniformity of political will across parties so the policy does not change frequently, followed by close monitoring,

which are prerequisites for its success. The study concludes by providing policy-oriented recommendation for government, and action-oriented recommendations for associations and ministries and other organizations that are critical to the future development of the ornamental fish trade in Sri Lanka.

INTRODUCTION

The rearing of ornamental fish in Sri Lanka dates to the early 1930s. It began on a small-scale in individual homes in Colombo and its suburbs. The aquarium fish industry centered around the commercial capital, with the establishment of the Zoological Gardens in Dehiwala, in the outskirts of Colombo. The first public aquarium was established in 1952 in the Zoological Gardens (Jonklaas, 1989). In the early 1930's there were several small-scale importers, breeders and hobbyists of ornamental fish in Sri Lanka (Wijesekera & Amerarathne, 2001).

The industry was commercialized by a few entrepreneurs approximately 50 years ago and has now developed into a thriving export industry, earning valuable foreign exchange and earning income for and providing employment to many people (Kuruppu, 1998). From being a hobby of a few affluent residents in the past, it has developed steadily and today, apart from many hobbyists and part time aquarists, there is a community of professionals, several of whom are engaged full time, with an increasing production of aquarium fish intended mainly for the export market. Initially, species of marine and freshwater fishes were collected from wild habitats for the export trade but poses a serious conservation issue.

Over 2005 and 2006, a total of 53 fish species in 21 families were collected from freshwater habitats, reared in hatcheries and exported from Sri Lanka (Gunasekara, 2011). Among those exported were 47 indigenous species, the most common being *Monodactylus argenteus*, followed by the endemic *Garra ceylonensis* and the exotic *Trichogaster trichopterus*. *Puntius cumingi*, *Puntius nigrofasciatus* and *Puntius singhala* had been also exported regularly during that two-year period. There are 48 countries to which freshwater ornamental fish have been exported from Sri Lanka. The leading importers are the United Kingdom, United States of America, France and Germany (Gunasekara, 2011).

With the increase in trade and value, there has been increasing concern raised by wildlife conservationists and environmentalists worldwide, and restrictions have been gradually imposed on the export and sale of wild caught species, so that in the early to middle 1980s, there was a gradual shift to breeding and rearing of indigenous and exotic freshwater fish varieties, along with several marine fish varieties. Breeders, many of them also exporters, expanded their facilities and began outsourcing. Overcrowding, high labor costs and lack of land for fish outgrowing facilities in and around Colombo and suburbs, resulted in large-scale growers moving their activities to rural areas in the western province, as well as to the dry zone. At present, ornamental fish outgrowing systems are distributed in the north central, northwestern and central provinces of Sri Lanka (Weerakoon, 1997).

Global trade

The keeping of ornamental fish is a hobby, which also has a worldwide interest. The ornamental fish industry includes more than 120 countries undertaking collection, breeding, import and export of fish and other species. Accurate ornamental fish industry data is difficult to obtain, as statistics vary between countries in terms of data collected, format and reliability. Andrews (1992) reported that the total value of the ornamental fish trade, including accessories such as tanks and filter systems, was USD7.2 billion in 1986. In trading of species, the Food & Agriculture Organization of the United Nations (FAO) data indicate that exports were worth approximately

USD330 million in 2011, at a rate of approximately 1.5 billion fish per annum, although according to INFOFISH the figure was USD364.9 million in 2011.

The European Union is the major importer of tropical pet fish, with 53 percent of the global trade. The major European Union importers were the United Kingdom (20 percent), Germany (16 percent), France (12 percent), Netherlands (9 percent), Italy (8 percent) Belgium (7 percent) and other countries (28 percent) (Tissera, 2010). Asia was second with a share of 26 percent, closely followed by the United States of America with a share of 18 percent, although the United States of America is the largest individual country importing ornamental fish. Imports into Africa and Oceania is approximately three percent respectively (FAO FishStat, 2017).

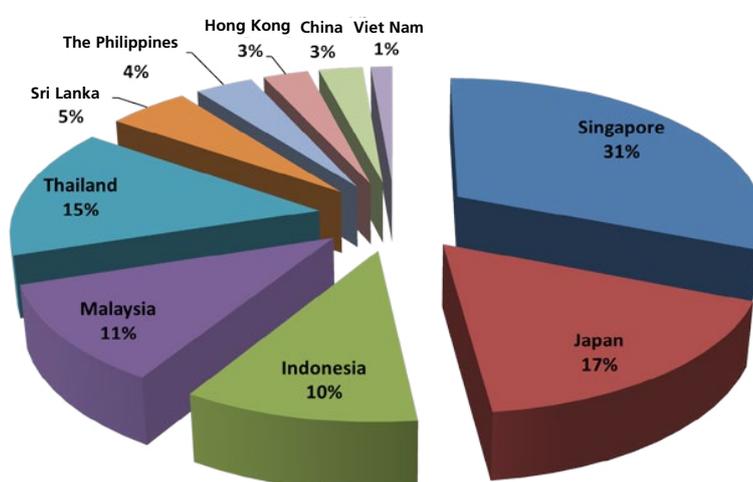
Sri Lanka's position in ornamental fish trade

Sri Lanka has a very high potential for exporting ornamental fishes. In 2014, Herath and Wijewardene (2014) reported that Sri Lanka's share of global markets was 4.2 percent 2000 and ranked seventh among exporters. Fifty to 60 percent of ornamental fish exported were wild-captured marine fishes, the remainder being freshwater fishes. In export terms the peak unit value was recorded in 2008, was lowest in 2000, but has significantly increased from USD7.38/kg in 2000 to USD11.34/kg in 2010. In 2012 Sri Lanka ranked 6th among Asian exporters, with the largest Asian exporter being Singapore, followed by Japan (Figure 1). At present Sri Lanka's share of the global trade of ornamental fish and aquatic plants is approximately 4.3 percent. Export values of ornamental fish and aquatic plants from Sri Lanka have grown steadily between 2011 and 2015 from USD10.06/kg to USD17.52/kg respectively, with an average growth rate of 16.1 percent (Sri Lanka Export Development Board (SLEDB) Export Performance Indicators 2006 – 2015).

Background

Before the advent of freshwater ornamental fish farming in ponds, the collection-based trade offered some relevance to poverty alleviation activity. Among the collectors of wild fish, the marine fish collectors were more affluent, as they were skilled divers who demanded higher wages. Employed dive teams would work for a single buyer, either an intermediary or an exporter. However, the collectors of freshwater wild ornamental fishes were from the poor villages, with local knowledge of the habitats and niches of various species in streams and rivers in jungle areas. The collectors of wild freshwater

FIGURE 1
Percentage, by value, of ornamental fish exports from Asian countries in 2012



fish varieties were directly employed by an exporter or by an intermediary, who then supplied exporters. The trade declined, however, after restrictions were applied on export of wild caught varieties. This did not occur before significant damage had been done to the naturally existing stocks whereby wild guppies and other varieties with vivid colors that swam in streams and paddy fields during boyhood days had all-but vanished.

As a developing country, farming of freshwater ornamental fish in Sri Lanka contributes significantly to the trade balance. Farming is generally carried out using intensive production systems, based on earthen ponds and cement concrete tanks. It is, therefore, a capital-intensive activity with high operational costs. Initially there was no direct government involvement in promoting this industry, with the then Department of Fisheries (DOF) more involved in regulating exports of wild caught marine and freshwater fish and invertebrates. The private enterprises, however, often applied for permits from the DOF to export certain restricted varieties of fish and invertebrates. This is now regulated by the Department of Fisheries & Aquatic Resources Development (DFARD). In the early 1980's, when the Sri Lanka Export Development Board (SLEDB) was created by an Act of Parliament, which gave recognition to the industry as a foreign exchange generator. The industry was assisted financially under various schemes developed by the SLEDB to assist all enterprises producing and/or exporting various products.

In Sri Lanka, ornamental fish breeding and rearing in ponds for export is a lucrative enterprise for high-income investors/exporters, or an alternative livelihood to supplement incomes of middle and low-income earners. There is no direct role in poverty alleviation. In large enterprises, the industry offers secondary benefits to the poor in the form of employment, but less so among middle to low income producers, as these enterprises tend to use family labor rather than outside employment *per se*. Middle and high-income farmers have direct access to exporters or are exporters themselves and enjoy the benefits of reasonable prices for their products. They are also able to demand better prices from exporters and their agents and have a higher bargaining power with various input suppliers. Some middle, and low-income farmers are the most affected, in terms of:

- bargaining power with input suppliers;
- lower economies of scale;
- higher transaction costs, due to small-scale production and poor infrastructure;
- agreements with buyers usually unfavorable to small-scale producer;
- weaknesses in product marketing, due to lack of knowledge of prices for products;
- inability to access latest technology from research and development; and
- inability to acquire productive good quality brood stock for production of virile juveniles.

In this context it is therefore reasonable to assume that low and middle-income freshwater ornamental fish farmers had decided to form fisheries associations, and to address many the above issues, realizing it is better to work together on these issues.

Objective of the study

The success or failure of a fisheries association depends on the collective intentions of individuals who join such associations. If for example, a farmer opts to join an organization mainly to obtain monetary benefits such as subsidies, loans and so on, there may be a tendency for the individual to leave when such benefits are not forthcoming or leave the association once they receive the gratuities. This does not bode well for the longevity of such associations.

The main objective of this study was to evaluate the main issues facing ornamental fish farming associations, and evaluating problems, how benefits of being associated

can be equitably shared among members, how farmers could benefit from being associated and how society benefits from a farmers' organization. The primary goal was to identify and describe factors that contribute to the strengthening, empowerment and sustainability (SES) of ornamental fish farmers' Associations (OFFA) by:

- conducting an analysis of strengths, weaknesses, opportunities and threats (SWOT analysis) of associations;
- identifying, describing and explaining key factors that constrain the strengthening, empowerment and sustainability of OFFA.
- identify opportunities for capacity building of OFFAs; and
- recommending policy options for empowering and sustaining OFFAs.

In line with the study concept and guidelines the objectives of the study focus on 1) the associations' capacity to efficiently and effectively achieve its organizational goals and objectives (**Strength**); 2) the associations' ability to interact, negotiate and work in collaboration with other stakeholders on equal terms, without compromising organizational ideals (**Empowerment**) and 3) the associations' ability to function at an effective level and maintain organizational viability, by ensuring the availability of sufficient resources for operational continuance and without relying on subsidies from any sources, thus maintaining its integrity (**Sustainability**).

Methodology

Key background information was collected through desk research and conducting key informant surveys with a range of stakeholder (Box 1). This was followed by an analysis of the desk review and Key Informant surveys, a synthesis of the review and survey results, and finally validating the same at a stakeholders' workshop.

BOX 1

List of key informants in Sri Lanka case study on ornamental fish farmer associations

- Chairmen and Secretaries of SOFB/FAs in the districts of Kaluthara, Puttalam, Ratnapura, Kandy, Kegalle, Galle and Gampaha (refer to Annex 5).
- Nimal Chandraratne, Director General/NAQDA.
- Ms J.M. Asoka, Director, Coastal Aquaculture Development/NAQDA.
- Ms K.B. Pushpalatha, Director, Freshwater Fisheries Extension/NAQDA.
- Mr Mahanama, Member/NFF.
- Regional Aquaculture Extension Officers in districts of Kaluthara, Puttalam, Ratnapura, Kandy, Kegalle, Galle and Gampaha.
- Mr J.S.B. Abeysinghe, Assistant Director (Livestock)/MASL
- Mr P.V. Jagath Abeyratne, Assistant Director, Business Development/MASL.
- Ms Dilrukshika Dissanayake, Fisheries Development Officer/MASL.
- Ms Nilmini Kumari Amarakoon, Fisheries Development Officer/MASL, System B, Welikanda.
- Ms H.W. Chamari Nilusha Vithanage, Fisheries Development Officer/MASL, System C, Dehiaththakandiya.
- Ms S.A.G. Anuradha, Deputy Director, Agriculture Division, SLEDB.
- Ms Amitha Adhikari, Scientist, Ornamental Fish Division/NARA.
- Mr K.V.S.K. Jayawardhene, Manager/Development Banking/BOC.
- Mr N.V.P. Gunawardhene, Senior Manager/Hatton National Bank.
- Mr C.P. Ihalagedera, Sales Manager/Prima.
- Mr Rohan Fernando, Angel Aquarium/Exporter.
- Mr Randika Fernando, Randika Aquarium Farm House/Exporter.
- Mr Sathyendra Wijepura, Aquatic Nurseries (Pvt) Ltd./Exporter.
- Officials of Mass media Organizations (Radio and TV).

Visits were undertaken to seven districts, including Mahaveli development areas. The Chair and the Secretary of each ornamental fish farmers' association in the districts visited, were requested to assemble at the office of the Regional Aquaculture Extension Officer (RAEO) and the meetings were conducted with them first. Next, the fish farm association members were interviewed separately, to cross check the information obtained at meetings with the Chairmen and Secretaries of the associations. The list of associations and key person met are defined in Table 1. Visits were also made to some of the farmer's facilities to observe their activities (Plate 1).

TABLE 1
District farmer associations visited during study survey

| District – Kaluthara: 396 ornamental fish farmers in total, using cement tanks and mud ponds (area unknown) | | |
|---|--|------------|
| Name of ornamental fisheries association | Names of persons met | Membership |
| Ingiriya Handapangala Ornamental Fisheries & Aquatic Plants Rural Association | Mr Dhamkith Jayathissa –Chairman Mr J.C. Jayakantha - Secretary | 13 |
| Ingiriya Handapangala Ornamental Fisheries & Aquatic Plants Rural Association | Mr Sarath Kumara - Chairman Ms D.M. Soma Pathmini - Secretary | 24 |
| Bandaragama Ornamental Fish Farmers' rural Fisheries Association | Mr Dhammika Weerakoon – Chairman Mr K.D. Amarashantha – Farmer | 38 |
| Panadura Ornamental Fish Farmers Rural Association | Mr Krishantha – Chairman Mr Thusith Fernando – Farmer | 14 |
| Kaluthara Ornamental Fish and Aquatic Plants Growers Rural Fisheries Association | Mr Mahesh Perera – Chairman Mr W. Anura Fernando – Secretary | 27 |
| District – Puttalam: 120 to 150 ornamental fish farmers, using ~7 ha of cement tanks and 0.8 of mud ponds | | |
| Ornamental Fish & Aquatic Plants Rural Fisheries Association. | Mr Ranjith Lal – Chairman Mr Nimal Karunarathne - Secretary Mr Dilpita Perera – Farmer Mr Pathum Lakshitha – Farmer | 60 |
| Chilaw Ornamental Fish & Aquatic Plants Growers Rural Fisheries Association | Mr J.A.R.I. Krishantha – Chairman Mr W. Suresh – Secretary Mr W.A. Sumith Fernando – Farmer Mr M.N. Chandimal Fernando - farmer | 32 |
| District – Gampaha: 650 to 700 farmers, using 5.8 ha of cement tanks and 8.4 ha of mud ponds | | |
| Siyane Ornamental Fish Rural Fisheries Association | Mr Nimal Rathnayake – Chairman Ms Mayuri Damayanthi – Secretary | 42 |
| Min Ekamuthu Ornamental Fish Farmers Association | Mr Anushka Gayan – Chairman Mr N.C. Bukoladeniya- Secretary | 22 |
| Green Lanka Flowers and Ornamental Rural Association | Mr Indika Senevirathne – Chairman Mr H.P.D. Dayawathie – Secretary | 31 |
| Aqua Friends Rural Fisheries Association | Mr C.D. Ranathunge – Chairman Mr Priyantha Costa – Secretary | 28 |
| Blue Wave Fish Farmers Association | Mr Jason Saminda – Chairman Ms Maureen Malkanthi - Secretary | 20 |
| District – Kandy: ~400 farmers using 0.4 ha of cement tanks and 0.7 ha of mud ponds | | |
| Kandurata Divineguma Rural Ornamental Fisheries Association* * one association for 20 District Secretaries divisions | Mr S.B. Herath – Chairman Mr N. Shantha Pushpakumara – Secretary Mr P.B. Samarakoon - Treasurer | 150 - 200 |
| District – Ratnapura: ~100 farmers using 0.5 ha of cement tanks and 0.15 ha of mud ponds | | |
| Ratnapura district Ornamental Fish Farmer's & Aquatic Plants Growers Association | Mr M.S.R. Peiris – Chairman Mr N.U.C. Pinto – Secretary | 45 |
| District – Galle: ~300 farmers using 4.6 ha of cement tanks and 5.6 ha of mud ponds | | |
| Min Mithuro Ornamental Fisheries Association | Mr M.H. Janith Udaya Kumara Mr A.W.P. Nuwan | 25 |
| Min Sayura Ornamental Fisheries Association | Mr R. Samaraweera Ms Menaka Gunawardhene | 45 |

TABLE 1 (CONTINUED)

| District – Kegalle: 400 farmers using 0.3 ha of cement tanks and 1.3 ha of mud ponds | | |
|--|--|-----|
| Warakapola Nildiya Ornamental Fish Rural Fisheries Association | Mr W.R. Dassanayake – Chairman Mr M.k.T.Hemantha Herath – Secretary | 35 |
| Ranveli Rural Fisheries Association | Mr A.A.N. Pradeep Kumara – Chairman Mr K.M.D.S. Bandara - Secretary | 25 |
| Dehiovita Ekamuthu Ornamental Fish Rural Association | Mr P.H.S. Ranjan – Chairman Ms P.G. Deepa Ramani – Secretary | 44 |
| Yatyanthota Diriya Miridiya Rural Fisheries Association | Mr S.A.S.A. Sandarapperuma – Chairman Mr A.W.M.P. Rathnayaka – Secretary | 30 |
| Rambukkana/Mawanella/Aranayake Eksath Rural Fisheries Association | Mr S.A.P.B.T. Sooriarachchi – Chairman Mr R.M.V.S. Wanigasekera - Secretary | 35 |
| Mahaweli systems: | | |
| Sooriyapokuna Ornamental Fish Farmers Association - System C | Mr W. Wijesiri welikumbura – Chairman Mr Priyantha Weerasinge – Secretary | 37 |
| Ornamental Fish Farmers' Association – System B | Mr Jayasiri Bandara Chairman Ms T.A. Malkanthi - Secretary | 270 |

PLATE 1

Photographs of meetings and farm visits conducted during Sri Lanka assessment of fish ornamental associations



Meetings were also held with various other stakeholders, such as government agencies including the National Aquaculture Development Authority (NAQDA) extension officers, National Aquatic Resources Research & Development Agency (NARA) officials involved in research and development, input suppliers (including feed companies, brood stock suppliers and chemical suppliers), Banks (credit providers), Exporters (trade) and mass media operatives. These meetings were held mainly via telephone.

A stakeholder meeting, to validate the findings, was held on the 19th of January 2017 at the NAQDA auditorium. Officers from the sectors were invited to the meeting to discuss the outcomes from the survey, and to finalize the the conclusions and recommendations. Two resource persons Mr. Sathyendra Wijepura (front line exporter) and Dr. Kamal Balasooriya (disease specialist) were invited to make presentations on the Global Trade in Ornamental fish, and Fish Disease Prevention and Treatment respectively.

THE SOCIAL AND ECONOMIC CONTEXT OF THE ASSOCIATIONS

Fisheries and aquaculture overview

Sri Lanka's inland freshwater resources comprise an area of 263 172 hectares (ha) comprising of reservoirs, lakes and seasonal tanks, while its brackish water resources cover 160 000 ha (Table 2).

TABLE 2
Inland water resources of Sri Lanka

| Resource Type | Area (ha) |
|----------------------------------|----------------|
| Major irrigation reservoirs | 70 850 |
| Medium irrigation reservoirs | 17 004 |
| Minor irrigation reservoirs | 39 271 |
| Seasonal tanks | 100 000 |
| Flood lakes (Villus) | 5280 |
| Upland reservoirs | 8097 |
| Mahaweli reservoirs | 22 670 |
| Total freshwater resource | 263 172 |
| Brackish water resources | 160 000 |
| Total water resources | 423 172 |

Source: Ministry of Fisheries and Aquatic Resources.

The freshwater reservoirs listed in Table 2 are all manmade lakes, with no natural lakes in Sri Lanka. Freshwater fish capture was in operation at a subsistence level from the early 1960s to the 1970s. Mozambique tilapia, *Oreochromis mossambicus* figured prominently in catches, after its introduction into the country's reservoirs in the early 1950s. At present, nearly 80 percent of the inland freshwater fish production is Tilapia, from capture fisheries in perennial reservoirs (Weerakoon, 2013).

Chinese and Indian major carps were introduced to Sri Lanka in the mid-1970s and beginning of the 1980s, respectively. These fish were artificially bred, and the fingerlings released to large, medium and small perennial reservoirs under a stock enhancement programme.

The introduction of the Chinese and Indian major carps gave a boost to fish production in inland reservoirs, with production increased from a mere 7 000 tonnes in the mid-1970s to 65 000 tonnes in 2015. Fish production from all inland capture, and culture based, fisheries between 2012 and 2015 are presented in Table 3.

TABLE 3
Annual fish production (tonnes) between 2012 and 2015

| Sector | 2012 | 2013 | 2014 | 2015 |
|----------------------------------|----------------|----------------|----------------|----------------|
| Marine sector (capture) | 417 220 | 445 930 | 459 300 | 452 890 |
| Coastal waters | 257 540 | 267 980 | 278 850 | 269 020 |
| Offshore/deep sea waters | 159 680 | 177 950 | 180 450 | 183 870 |
| Inland/aquaculture sector | 68 950 | 66 910 | 75 750 | 67 300 |
| Inland capture fisheries | 58 680 | 55 020 | 68 820 | 57 060 |
| Inland culture fisheries | 6 960 | 7460 | 1780 | 3150 |
| Shrimp farming | 3310 | 4430 | 5150 | 7090 |
| Total production | 486 170 | 444 830 | 535 050 | 520 190 |

Aquaculture (food fish production)

Aquaculture in Sri Lanka is mainly composed of shrimps/prawns, farmed in the north western and eastern Provinces. In addition, high demand from tourist hotels and some consumers in the western Province (especially in Gampaha and Colombo districts), including display and sale in supermarket chains in Colombo and suburbs, has boosted the farming of tilapia, although scales of production are too low for it to appear separately in FAOs aquaculture statistics.

Apart from pond culture of freshwater/brackish water fish, culture based fisheries (CBF) in seasonal tanks is also considered as aquaculture of freshwater fish, where fish fingerlings produced from brood fish, reared and bred in captivity are stocked in seasonal tanks to be harvested in 7 to 8 months, when the water recedes during the dry season. The production of freshwater fish from CBF also contributes significantly to national inland fish production (Table 3).

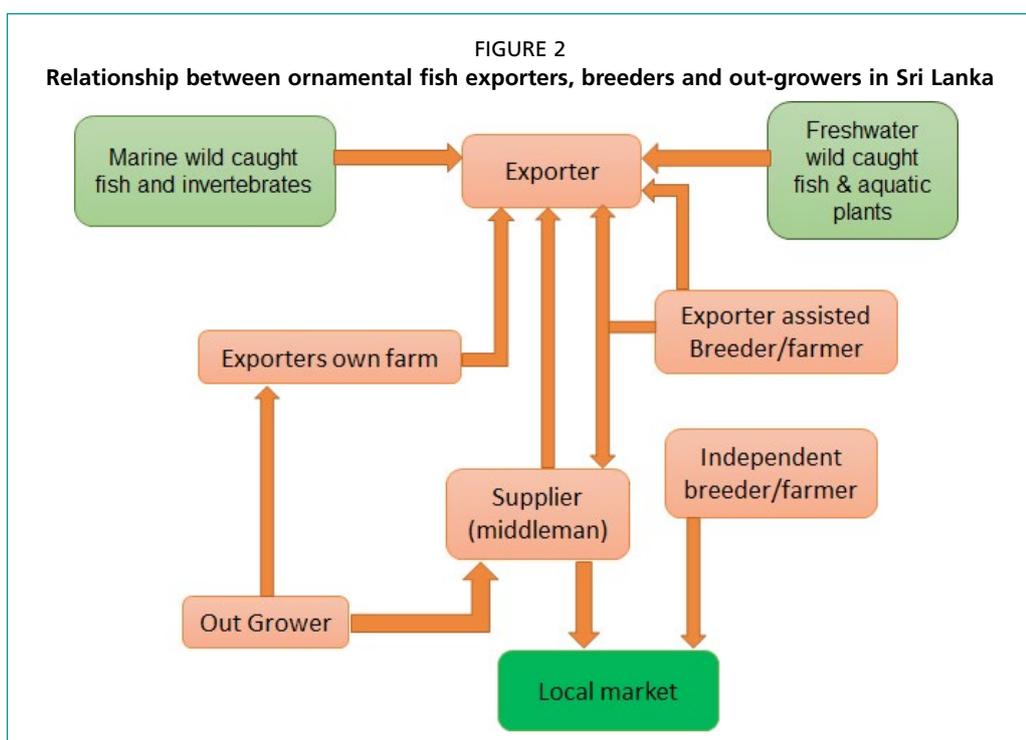
Aquaculture (ornamental fish production for export)

Ornamental fish output was regulated by government, primarily to prevent over-exploitation of wild stocks from marine and freshwater resources. The worldwide intervention to prevent the extinction of rare species of fish and invertebrates in which sales are banned or restricted varieties, maintained as the Red Book list by CITES International and the International Union for Conservation of Nature (IUCN), made the ornamental fish export sector focus on breeding of fish, mainly of banned and restricted varieties of freshwater fish. Today, certain varieties of marine fish are also being bred in captivity for the export trade.

The ornamental fish export industry

The Sri Lanka ornamental fish export industry comprises exporters of ornamental fish, invertebrates and aquatic plants, suppliers, breeders and out growers. The exporters belong to a strong association, who's members started out as breeders, and transferred to exporting as the industry grew; they have a longstanding experience and high competence. Another association consists of those who had been exporting wild caught marine fish and freshwater, but with the imposition of the CITES/IUCN ban and restrictions on exporting wild caught species, turned into breeders of freshwater fish varieties; they perform the breeding or employ renowned breeders of rare varieties.

Through the years, with the demand for more colorful varieties of freshwater ornamentals such as guppies, platies, tetras, and barbs increasing worldwide, these self-made exporters commenced outsourcing for different varieties from breeders/farmers. The exporters, with their extensive knowledge, imparted this knowledge and skills in breeding and rearing of varieties to their outsourced breeders/farmers. They also supplied the necessary inputs, such as fish feed and therapeutants. The breeders



and farmers, however, were obliged to sell their product to the exporter, with the costs of the various inputs supplied by the exporter deducted from the amount the exporter paid for the fish.

In some instances, the exporter supplied out-growers with fry of different varieties of ornamental fish produced in their own farm. The out-growers in turn grew them in their facilities and sold the marketable fish to the exporter. By far, these out growers have become the most vulnerable group of ornamental fish producers, because they are at the mercy of the exporter supplying the fry and who, on most occasions, tries to exploit the out-growers by downgrading their output's quality and not paying a fair price for the fish they are buying from out-growers. Figure 2 gives an indication of the relationships between exporters, breeders and out-growers.

Ornamental Fish Exporters' Association (OFEA)

The ornamental fish exporters' association (OFEA) comprises members who export either marine fish and invertebrates or freshwater fish and aquatic plants or both. These exporters belong to the more elite group in the ornamental fish export community. In the beginning, some of these exporters had conducted business on a small-scale, but with development have become local icons in the export community, through hard work, resilience and diligence. Among them, are some diver/collectors of marine fish and invertebrates, who have turned into exporters themselves.

Among the freshwater ornamental fish breeder/farmers, some have given up supplying exporters with different varieties of ornamental fish and transformed themselves into exporters by utilizing their own assets to increase their production capacities. For these breeder/farmers, who had executed export orders on a regular basis, it was not difficult to obtain a loan from the Bank, where their accounts are maintained, to help this development (Box 2). Many of these exporters had commenced their breeding and farming activities on lands belonging to their parents and with monetary support from them. Some had commenced activities in their backyard, and later expanding with accrued resources.

BOX 2

Success story: Mr E.S. Randika Fernando

Name of Facility: **Randika Aquarium Farmhouse.**

Mr R. Fernando's facility is located at Bathgahamuula Road, Ragama, Sri Lanka. He was born to a family of 4 (including parents). His older brother, who was about 10 years older to him was an ornamental fish hobbyist from his younger days and spent time in experimenting with breeding ornamental fish in glass tanks located outside their home. Young Randika showed an interest from his school days and helped out his brother in cleaning and maintaining the fish tanks on his return from school.



Later, when his older brother entered the Medical Faculty of the University of Ceylon, Colombo, Randika took over the activities of the aquarium tanks and ornamental fish breeding and rearing, mainly as a business. After graduation at the Ocean University, Sri Lanka, he took to ornamental fish breeding and rearing as a full-time business, by supplying exporters and the local market. With funds provided by his family, he later expanded the facility and with improved business, started an account at one of the commercial Banks (HNB) in Sri Lanka and continued to maintain it with a reasonable balance regularly for some time. This enabled him to obtain a loan of LKR 500 000/- from the Bank without any problem, to further expand his facility to the extent seen today. When his exports started to increase, he outsourced the fingerlings from breeders, by providing the entire stock of brood fish to some of his trusted breeders and continues to obtain the fingerlings from them. The breeders were obliged to supply Randika with the product, for the export market.

His next plan was to supply the retail markets in Europe, whom he became acquainted with on some of his trips to 'Interzoo' held in Nurenburg, Germany. The European retail market does not require big quantities from one exporter, as the European retail market sources products from various buyers from other countries in Europe, including East European countries. However, he gained the confidence of EU buyers by supplying consistently to niche markets, where there is minimum competition from his counterparts back home in Sri Lanka. Today, he exports to countries such as, Bahrain, France, United States of America, Canada, Doha, Kuwait, Saudi Arabia and Lithuania, sending approximately 100 000 fish to each destination. He also imports fish varieties from Thailand and Malaysia to balance the requirement whenever he is short of certain varieties. The fish supplied by Randika are goldfish (5 varieties), angels (10 varieties), tetras (20 varieties) and barbs (4 varieties).

He is today the President of the Ornamental Fish Exporters' Association in Sri Lanka.

**Small-scale Ornamental Fish Breeder/Farmers Associations (SOFB/FA)**

The members of this association are the freshwater fish breeder/farmers of freshwater and marine fish and the most vulnerable group of in the trade, vis-a-vis the out grower, because of the potential for exploitation by larger breeders and exporters.

At present there are a large number of breeders and out growers in almost every district, especially in the Western Province, servicing exporters and supplying the local domestic trade. The small-scale ornamental fish breeder/farmers/out growers are small and middle-income groups who have regular jobs, or are self-employed in other trades and/or retired government servants, who consider this commercial activity a potentially lucrative pass time. It is these small-scale ornamental fish breeders/farmers/out growers who have formed the associations, to address their problems encountered in the trade.

The economic and social status of associations

In Sri Lanka, the economic and social status of an association primarily depends on the earning capacity of its members and the financial resources of the association, with all other considerations being secondary.

Although not directly related to consideration of the ornamental fish sector, and good example of a successful association comes from the fisheries sector. The financial assets of a fisheries association are generated by 1) contributions from its members in the form of a membership fee and 2) charging a daily levy on the income earned by its members from fish capture. The fisheries association, compared to the ornamental fish producer's associations, are in a strong position by each associations' ability to collect funds to form a revolving fund for each association. Apart from the membership fee charged from each member, fisheries associations of the food fish sector charge a levy on every kilogram of fish harvested per day from the fishers. Half of this levy is deposited in a Bank savings account opened in the name of the fisher and the other half goes into the account of the association's revolving Bank fund. Over the years, such revolving funds have greatly increased, so that fisheries associations are in position to consider giving loans to its members for various needs. Some associations also offer scholarships to children of the fishers to continue their education. Box 3 provides an example of a success story for the fisheries associations.

The SOFB/FAs have yet to reach this stage in development. All associations indicated that, other than for the funds created within the association through membership fees, there are no other financial assets within the associations. One or two associations in certain districts have organized ornamental fish exhibitions for the public, with the assistance of the Provincial Council of the districts, as awareness programs to educate the public on the ornamental fish trade, with the funds collected from ticket sales deposited in that association's account. Unlike the food fish sector, where fish is harvested from an open resource and the imposition of a fixed rate per kilogram of fish to be paid to the fisheries society could be made compulsory, in the ornamental fish farming sector, such impositions cannot be made compulsory due to the fact that the ornamental fish farming community is an independent group operating privately.

The monthly income of small-scale ornamental fish farmers ranges between LKR (Lanka Rupees) 15 000 to LKR 30 000 per annum. The medium scale farmers' monthly income ranges between LKR 40 000 up to LKR 100 000; and the top rung farmers'/exporters' monthly income can be as high as LKR 1.0 million. In any case, the ornamental fish farmers cannot be expected to be truthful, when it comes to payment of a fee commensurate with their income earned every month, to build up a revolving fund for the association. However, in their own simple way one association in the Puttalam district has succeeded as an association, due to their own inventiveness (Box 4).

Policy and institutional context of associations

All small-scale ornamental fish breeder/farmers associations have been constituted according to the guidelines stipulated by the National Fisheries Federation (NFF), based in the Ministry of Fisheries and Aquatic Resources Development (MFARD), the

BOX 3

Success story: Food fish sector associations

The major tank is named as Senenayake reservoir and is one of the large reservoirs, comprising of a Fisheries Society (FS) of 300 fishermen, who captured 568 tonnes of fish in 2013-2014, containing a mixture of species. The medium perennial tank is called Jayanthiwewa where the FS comprises 69 fishermen who do well to capture 238 tonnes of fish annually; and the minor perennial reservoir is called Hambegamuwa Dheewara Village tank comprising of an FS with 60 members, who manage 60 tonnes annually. Every fisherman of each reservoir operates one fiber glass oru (catamaran) illustrated in the photos. The fishers commence their fishing activity from 14:00 hrs to 17:00 hrs each day by going deep inside the reservoir to the specified fishing grounds to lay nets. Then they arrive by night fall and leave early next morning from 05:00hrs to 06:00hrs back to the fishing grounds to recover their nets along with the harvest.

Once landed, the fish are weighed by FS personnel and recorded in journals at the site to be computerized later (see photos). The amount and value of fish caught by individual fishers is variable, as presented below. The average monthly income of each fishermen at the three reservoirs ranges between LKR 50 000 to LKR 100 000. A daily levy is applied to each fisher, based on amount (in kg) caught, which provides funds for the fisherman, and for the association, who use those funds to support members.

Total fish production from culture-based fisheries from three sizes of reservoir in fiscal year 2013/14

| Name of tank | Scale | District | Quantity harvested (kg) | Total revenue/annum (LKR) |
|------------------|--------|------------|-------------------------|---------------------------|
| Senenayake tank | Large | Ampara | 568 052 | 69 115 740 |
| Jayanthiwewa | Medium | Ampara | 238 736 | 25 919 815 |
| Hambegamuwa tank | small | Moneragala | 60 000 | 8 100 000 |

Details of income of selected fishers from culture-based fisheries from three sizes of reservoir in fiscal year 2013/14

| Name of tank | District | Fish varieties caught | Quantity of fish harvested per annum (kg) | Total value of harvest/annum (LKR) |
|--------------------------------------|------------|--|---|------------------------------------|
| Jayanthiwewa Fisher 1 | Ampara | Tilapia Rohu Catla Mrigal Common carp | 12 438 | 1 206 260 |
| Jayanthiwewa Fisher 2 | Ampara | Tilapia Rohu Catla Mrigal Common carp | 9 221 | 1 113 875 |
| Senenayake reservoir Fisher 3 | Ampara | Catla Rohu Tilapia | 6 061 | 685 000 |
| Hambegamuwa reservoir Fisher 4 | Moneragala | Tilapia Catla Mrigal Freshwater prawns | 4 445 | 600 000 |



BOX 4

Success story: Puttalam ornamental fish farmers association

Name of Association: **Ornamental Fish and Aquatic Plants Rural Fisheries Association, Puttalam district.**

President's name: **Mr. Ranjith lal**

Secretary's name: **Mr. Dilpita Perera**

Total membership: 39 members

Year of commencement: 2009

The Association started life as co-operative society with about 140 members, and run successfully in this form until 2009. Following development of the National Aquaculture Development Authority (NAQDA) of Sri Lanka in 2003, it decided to insist that all related associations needed to register under regulations, even though the NAQDA Act did not specify this need implicitly. Having been a cooperative, the society disbanded in 2009, and fewer members formed an ornamental fish association, sort and obtained registration under the NAQDA regulations.

The association is considered as a strong association. The constitution was drafted in line with the National Fisheries Federation guidelines, has a properly constituted Board (Mandalaya) and members being elected under democratic principles. The association conducts twelve monthly meetings with the annual general meeting (AGM) held once a year. There is complete transparency in accounting with the accounts audited by an external auditor, and the audited statement of accounts, distributed to all members prior to the AGM.

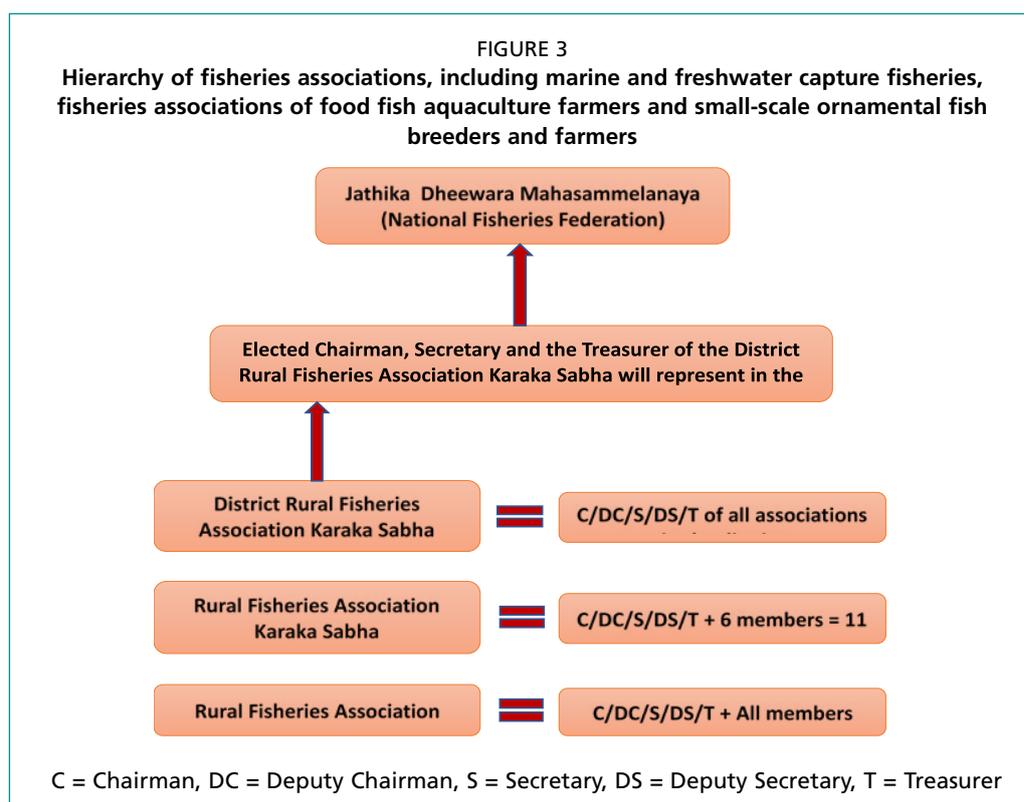
The association maintains a revolving fund formed out of association membership fees. The association hold ornamental fish and aquatic plants exhibitions regularly, either alone or in collaboration with the Provincial Councils and social welfare programs, such as organizing popular stage plays/dramas for public viewing. The money collected from ticket sales at these exhibitions and welfare programs, also contributed in developing the revolving funds of the association.

Although there was a sizeable reduction of the membership at the time when the co-operative society was converted into an association, it has successfully retained the that membership. This has been mainly due to the friendly cooperation among members, and the association being able to provide financial, technical and social assistance. The association also obtains financial assistance in the form of subsidies from the Provincial Councils, to provide its members with accessories, such as, shade nets, harvesting nets, water pumps, air-blowers and other equipment.

The association members have also participated regularly at 'Aquarama' Ornamental Fish Accessories Exhibitions (2009, 2011, 2013 and 2015) and has been the only association to collectively win over thirty international awards at competitions held during the respective exhibitions. The association has been assisted financially by the SLEDB and the Puttalam provincial council to participate at these exhibitions, by, for example, providing 50 percent and 100 percent on the cost of airfares, inclusive of the competition fees. The association was also selected as the Best Ornamental Fisheries Association in Sri Lanka at the 'Min Visithuru' 2016 Trade Fair and Exhibition held in Colombo under the patronage of NAQDA.

The association has also succeeded in producing three exporters, who have attended 'Interzoo' Petfare Exhibition in Nurenberg, Germany. The varieties of ornamental fish exported by the members of the association include Guppies (30 varieties), Swordtails, Platys, Goldfish, Carps and others.

There continues to be constraints on association members, centered around, 1) obtaining loans from Banks (due to stringent collateral and surety conditions); 2) difficulty in obtaining new varieties of brood stock from producing countries in the region and the east European countries to develop new lines; 3) land for expansion of facilities; and 4) inputs such as quality fish feed and Artemia from Lanka Salt Company.



Chairman of the Federation being the Hon' Minister of Fisheries & Aquatic Resources Development. All the fisheries associations in the country (marine and freshwater capture fisheries, inclusive of fisheries associations of food fish aquaculture farmers and small-scale ornamental fish breeder/farmers') are registered under this Federation (Figure 3).

Most small-scale ornamental fish farmers' associations had started with a fairly large membership comprising of around 80 to 90 + members. Over time this number has, however, greatly reduced to as low as 15 and up to about 50+ members. The reasons for such reductions in the membership are mostly due to the inability of the association to service the varied requirements of the small-scale farmers, pertaining to obtaining loans at low interest rates, lack of incentives expected, failure to obtain various inputs such as fish feed and live feeds at concessionary rates and failure at receiving a fair price for their products.

All associations irrespective of their membership number have drafted their own constitution or charter in line with the NFF. They all have a Board comprising of a Chairman, Deputy Chairman, Secretary, Deputy Secretary, and Treasurer, with the rest as members of the association at the rural level. The association sub-committee at the rural level comprises the above-mentioned Board members plus six committee members making a total of eleven individuals (Figure 3). The Board members are all elected members from among the membership, according to democratic norms. If more than one member is nominated, the members vote to elect their preference. All Board members are elected in this manner.

Capacity building of members of the association is carried out by NAQDA and National Aquatic Resources Research & Development Agency (NARA) upon request made by the association either directly or through the respective Provincial Council. On certain occasions, the members get knowledge based assistance from fellow members, relating to breeding techniques and disease prevention and treatment.

All members of associations meet once a month to discuss various issues faced by its members. At each monthly meeting, the association's financial accounts are presented,

and concurrence of its members are obtained. Altogether, twelve meetings are held per annum culminating with the annual general meeting, held to discuss the current year's activities, presentation of the annual budget for the following year and election of new officers.

RELATIONSHIP BETWEEN SOFB/FAS AND OTHER STAKEHOLDERS

The Sri Lanka Export Development Board (SLEDB)

The SLEDB was established through an Act of Parliament, and during the 1980s was the first organization to pay attention to developments in the ornamental fish and aquatic plants trade as an export industry. The SLEDB devised various schemes to assist the export sector in general. These included fiscal incentives, such as tax rebates and financial assistance to increase capacity through development of the facilities of exporters, and for product and market development.

Other financial assistance schemes included, offering 50 percent and 100 percent financial assistance to established exporters and small and medium scale enterprises (SMEs) respectively, to participate at international trade fairs. All the ornamental fish exporters (large scale and SMEs), who were eligible for assistance under these schemes, availed of such opportunities to develop their export potential. These assistance schemes were instrumental in the emergence of a new generation of exporters during the 1980s and 1990s, in all SLEDB recognized products with export potential. The SLEDB at present continues to assist exporters, both large scale and SMEs, in market development programs by exposing them to international trade fairs and assisting certain groups of small-scale ornamental fish breeder/farmers financially to increase their production capacities.

The market development programs arranged by the SLEDB to assist ornamental fish exporters to attend trade fairs, including Aquarama in Singapore and Interzoo in Germany, has helped the breeder/farmers with extra capacities and export potential, to become exporters. These would-be exporters were exposed to buyers from around the world, especially at Interzoo in Germany, where they availed of the opportunity to negotiate export orders to buyers' requirements. They were also exposed to new varieties of fish that buyers wanted, and became knowledgeable on the price structure being paid globally. Some established exporters participated in competitions organized by sponsors of 'Aquarama' and have won several international awards bringing fame to Sri Lanka, winners including Lumbini Aquarium Ltd in Sri Lanka. More recently, members of a small-scale fish breeder/farmers' association in the Puttalam district, who had participated in 'Aquarama' International Trade Fairs in Singapore have won around 30 international awards, throughout their participation in 2009, 2011, 2013 and 2015.

Ministry of Fisheries and Aquatic Resources Development (MFARD)

The primary focus for policy formulation and regulatory activity associated with the fisheries sector in Sri Lanka is the MFARD, supported by the principal implementation and management agencies; DFARD for marine capture fisheries and NAQDA for inland capture fisheries and aquaculture.

The MFARD is mostly involved with policy formulation for the marine and freshwater fisheries food fish sector, and they do not involve themselves with the ornamental fish export sector, due to it being a mainly private sector industry (belonged to the pet industry), generating income through local sales and exports. However, when the industry is faced with specific issues of export, associated with the Customs Department, typically concerned with effecting exports from Katunayake International Airport, these are referred to the MFARD through the SLEDB for resolution.

Department of Fisheries and Aquatic Resources Development (DFARD)

DFARD is responsible for coastal, offshore and deep-sea fisheries development, management and control, through regulation. The DFARD is the regulatory authority for both marine and freshwater capture fisheries. All the fishermen involved in fishing activities in marine coastal, offshore and deep-sea waters are registered with DFARD. This is also the regulatory authority for control of exports of marine and freshwater food fish and ornamental fish and aquatic plants and marine invertebrates to overseas destinations. Other than for exports, the DFARD is not responsible for any problem resolution of the ornamental fish and aquatic plants export sector.

National Aquaculture Development Agency (NAQDA)

NAQDA is responsible for development, implementation, control and regulation of inland fisheries and aquaculture. Freshwater or brackish water fish/shrimp production, whether it is from capture fisheries or aquaculture, is governed by NAQDA, through delegation of authority from DFARD. All fisheries associations representing fishers and fish farmers involved in freshwater fish capture fisheries and aquaculture respectively, are subject to control by regulations drafted by and made law by government through gazette notification. NAQDA, through delegation of power by the DFARD is the implementing authority.

NAQDA started focusing attention on the ornamental fish trade quite recently (after 2003) with the establishment of the Ornamental Fish Breeding and Aquatic Plants Propagation and Training Center (OFBAPTC) in Kurunegala district. Since then NAQDA has been involved in training of potential ornamental fish breeders and outgrowers, in breeding and farming practices. However, unlike in the food fish sector where NAQDA as an institution has a greater involvement in welfare and extension activities, the involvement of NAQDA and the DFARD in the ornamental fish trade is still more or less, regulatory.

National Aquatic Resources Research and Development Agency (NARA)

NARA is responsible for carrying out research, development and dissemination of research information to fisher communities and other stakeholders. NARA's role in the ornamental fish sector is, primarily, to carry out research and development in breeding and feed development. Research in these two areas has been carried out to some extent by NARA at different times, and research findings have been disseminated to the industry through training programs. However, this activity has not been consistent.

Mahaweli Authority of Sri Lanka (MASL)

The Mahaweli Authority of Sri Lanka (MASL) was established under an Act of Parliament in late 1979, to implement the accelerated Mahaweli River Diversion Scheme (MRDS) under which, several dams were constructed to divert the major rivers in Sri Lanka, to construct reservoirs for hydropower generation and irrigation purposes. MASL has earmarked 365 000 ha of land for development of Agriculture in 13 Systems identified under the Mahaweli Development Program (MDP). The MASL's current task is to implement the envisaged project plan in the balance of areas proposed by the Master Plan, including the officially declared areas. Under this Plan, rehabilitating and maintenance of the irrigation network, land administration, enhancing production from agriculture and human settlement processes are the main activities. Further, the MASL is responsible for managing irrigation waters for 101 526 ha. of irrigable land in the dry zone².

From inception, the MASL has been providing water for agriculture purposes, with large land areas in the dry zone brought under cultivation from the diverted waters of

² <http://mahaweli.gov.lk/en/index.html>

the Mahaweli river. Provision of water for aquaculture commenced in the mid-1980s, because of the then Inland Fisheries Division of the MFARD providing agriculture farmers subsidies for fish pond construction in Mahaweli areas, to engage in food fish culture activities.

The food fish culture activities did not reap the expected benefits to the farmers, however, and for the government it was deemed as a failed project. The exporter/breeders of freshwater fish in and around Colombo city saw this program as an opportunity for them to out-grow the fry of different varieties of ornamental fish using farmers and their mud ponds already constructed within the Mahaweli areas. This was the beginning of a profitable enterprise for the farmers in the Mahaweli areas. The areas where this activity is most prevalent today are, Mahaweli Zones (MZ), B (Welikanda), C (Dehithakandiya), D (Medirigiriya), G (Bakamuna), H (Thambuththegama), Walawe (Embilipitiya) and Victoria (Kothmale) (Table 4).

TABLE 4
Annual fish production (tonnes) between 2012 and 2015

| Mahaveli Zone | No. of farmers | No. of breeders | No. of ponds | Pond area (m ²) | Annual production (million pairs) |
|-------------------------|----------------|-----------------|--------------|-----------------------------|-----------------------------------|
| B – Welikanda | 310 | 12 | 680 | 102 000 | 6.82 |
| H – Thambuththegama | 280 | 10 | 100 | 15 000 | 0.35 |
| C – Dehiththakandiya | 112 | 10 | 186 | 27 900 | 2.23 |
| D – Medirigiriya | 77 | 10 | 94 | 14 100 | 0.70 |
| Walawe, Embilipitiya | 25 | 02 | 40 | 6000 | 0.22 |
| G – Bakamuna | 23 | 02 | 27 | 4050 | 0.16 |
| Victoria, Kothmale | 17 | 01 | 23 | 3450 | 0.03 |
| Total production | 844 | 47 | 1 050 | 157 500 | 10.51 |

At present, there are a total of 844 ornamental fish farmers (out growers) and 47 breeders and 1 050 ponds (cement tanks and mud ponds) with a total area of approximately 157 500m². The annual production of ornamental fish from the Mahaweli areas which is mainly intended for the domestic market is estimated at 10.5 million pairs (Mahaweli Authority of Sri Lanka, pers. comm.). The total value is estimated at LKR300 million, approximately USD1.6 million³.

Livestock and fisheries activities in each MZ is coordinated by a Fisheries and Livestock Development Officer (FLDO), under whom Field Assistants (FAs) oversee supervision and conduct of extension activities for ornamental fish farmers in their respective zones. Each zone is divided into blocks and then into units and the number of units formed depends on the number of families in each block. At the inception of ornamental fish farming in each zone, there was a fair distribution of fish farmers with fisheries associations formed. However, with time, when the farmers were deprived of fair prices for their products from buyers or their agents, and sometimes due to lack of water resulting in disputes occurring between them and agriculture farmers competing for water, they had opted out of this activity. Today, the ornamental fish farmers are concentrated in a few units in each block. These farmers have formed associations with a constitution, under the guidance of the FLDO in each block and have registered such associations under the NAQDA National Aquaculture Management Regulations (NAMR). Although the associations have been formed in this way, the farmers still look up to and depend on the Mahaweli FLDOs and their FAs for redress, when faced with problems pertaining to farming activities, rather than depending on the associations hierarchy to solve them. The main problems faced by these farmers are 1) obtaining a fair price for their products, 2) obtaining loans from Banks, due to

³ Exchange rate of USD 1 = LKR149 on 02-02-2017

collateral provision problems, 3) high cost of fish feed, and 4) water requirements for ponds, due to competition with agriculture farmers. The MA has been assisting these farmers to develop their own infrastructure capabilities, by providing their cement requirements at a 50 percent subsidy. A 50 percent subsidy is also provided to purchase shade nets, air blowers and other accessories needed for farming activities (Plate 2).

The MA has also provided loans through the Provincial Development Bank (PDB), the Bank of Ceylon (BOC) and People's Bank (PB). Under this scheme (Mahaweli Aruna), the maximum loan amount payable was LKR 10 million, with the MA subsidizing the interest payable on the loan imposed by the Banks (8 percent) by 4 percent. The Authority has funded the farmers to follow training programs at NAQDA, OFBPTC at Rambodagalle, in the Kurunegala district and provided the services of fish disease experts from time to time, to impart their knowledge to ornamental fish farmers on diagnostics, prevention and treatment of fish diseases.

PLATE 2
Different pond systems in Mahaweli areas



Notes: A: Cement ponds of a farmer in the Mahaweli area; B: Mud ponds in Mahaweli area, for carps and goldfish, covered with shade nets; C: A typical mud pond for carps and goldfish in Mahaweli Zone B; and D: Proposed collection centre for ornamental fish, of farmers in the Mahaweli areas, within the premises of the Mahaweli Authority.

Financial institutions (Banks) and schemes

The relationship between ornamental fish breeder/farmers and lending institutions is unsatisfactory. All State and commercial Banks have loan schemes to assist SMEs. However, the conditions set by Banks to obtain such loans, are considered somewhat rigid at best. Especially, for small-scale ventures such as ornamental fish farming/out growing, the Banks have a high tendency to reject applications made. The reasons for rejection tend to be either the inadequacy of collateral or an ability to produce two government officials as sureties, as security by loan applicants. Another reason is the inability of the loan applicants to submit comprehensive project proposals/business plans to the satisfaction of Bank officials.

On a request made by NAQDA to the MFARD, an agreement has been reached with the Bank of Ceylon (BOC) in Sri Lanka, to provide loans, where an interest rate of five percent is paid by small-scale ornamental fish breeder/farmers, while the

MFARD will pay the BOC four percent of the loan interest, in order to cover the overall nine percent interest rate. The loan scheme is termed 'Dheewara Diriya'. The maximum loan amount under this scheme is LKR 10 million. All State and commercial Banks operate a soft loan scheme with funds made available by the Asian Development Bank (ADB) to assist the ornamental fish farming sector. The interest rates applicable are rather high at 11 to 12 percent. Overall, bank loan and bank loan schemes are out of reach of the small-scale breeder/farmer, due to strict rules, regulations, terms and conditions imposed by the Banks.

Under another scheme, an ornamental fish breeder/farmers' association can make a request to the Provincial Council (PC) for financial assistance, by submitting a list of fish farming accessories such as, shade nets, fish harvesting nets, water pumps, air blowers, fencing material, that are needed. The PC purchases the required accessories from traders and makes them available to associations at a 50 percent subsidy. The association, generally, collects the remaining 50 percent of the cost from its members, and posts this to the PC financial account, and once paid can collect the accessories and distribute them to members.

Previously there was a financial assistance scheme known as the 'Divineguma', where the Government, provided small-scale ornamental fish farmers a grant of LKR 35 000, as a first phase, to develop infrastructure facilities; with a second phase available, up to LKR 75,000. Some farmers were able to avail themselves of this facility but in since 2015, and a change of Government, the scheme was discontinued, thus depriving most farmers of this opportunity of funds under the scheme.

Mass media organizations

Relationships between SOFB/FA and mass media organizations are insignificant. When a local ornamental fish exhibition is organized by a SOFB/FA as part of an awareness program in a certain district, the media (TV, Radio and some newspapers) may or may not be invited to cover such an occasion. In certain instances, popular articles written by ornamental fish hobby enthusiasts may be published in newspapers and magazines, to publicize the discovery of a new species of freshwater ornamental fish or some new breeding technique, for example. TV programs may also be organized by certain TV channels to make the public aware of the export potential of popular varieties of freshwater ornamental fish bred in captivity, such as the brilliantly colored guppies which enjoys the highest international demand, including interviews with NAQDA officials, the export sector and environmental group personnel. However, these are not regular programs which could help the members of SOFB/FAs to address their more pressing problems. TV, radio and the newspapers are used by NAQDA to publicize Min Visithuru, the Ornamental Fish, Invertebrates and Aquatic Plants Exhibition, organized annually, as a local market development activity to assist the small-scale breeder/farmer of freshwater ornamental fish and aquatic plants.

Other farmers' associations

SOFB/FAs of one district may merge or amalgamate (Puttalam, Kegalle and Ratnapura districts) to form one association, especially when the membership of those associations is small, and to obtain leverage, in achieving the goals and objectives for members, for example. On other occasions the members of one SOFB/FA in a district may visit similar associations of another district where ornamental fish farming is functioning successfully, to learn about any special techniques adopted by them to make their ventures more successful. These study tours are organized by NAQDA extension staff.

SOFB/FAs do not maintain any relations with fish farmers' associations or fisheries associations in the food fish sector.

Input suppliers

The main input suppliers to the ornamental fish farming sector are those supplying fish feed, chemicals and therapeutant drugs. The relationship between SOFB/FA members and dealers are strictly on a business footing. The suppliers import fish feed, prawn feed and live feed such as artemia. Artemia cysts are also produced locally by Lanka Salt Company, which produces artemia in salterns in Hambanthota.

There are no dedicated ornamental fish feed manufacturers in Sri Lanka. Certain grades of chicken feed produced by Prima Ltd, which produces livestock feed, are used by ornamental fish farmers as fish feed, along with certain grades of feed used for prawn post larvae. These feeds are sometimes mixed with cattle/pig hearts/livers or high-grade fish meal to compound a new diet on site, which is especially done for broodstock. For larger fish tilapia feed is used (Plate 3).



Chemicals and therapeutants to, treat the earthen ponds and fish diseases respectively, are purchased from dealers (of chemicals) (e.g. formalin) and pharmacies for drugs/medicines. Veteran fish farmers have no problems in acquiring such products, as they have been dealing and having friendly personal relationships with these suppliers for a long time. Newcomers do have problems in accessing these chemicals in large quantities to disinfect their ponds and are required by law to present a prescription to a pharmacy for any drug intended for fish disease treatment.

Product buyers

The ornamental fish and aquatic plant product buyers are the exporters and their agents or intermediaries (called “middlemen”). The intermediaries supply the exporters as well as the local trade, and serve several functions, but the main one is the aggregation of small collections of ornamental fishes into “lots” of sufficient size to supply exporters’ needs. Aggregation increases the quantity available to exporters, and the range of species available (Watson, 2000).

The relationship between the established breeders/farmers dealing directly with the exporting community is firm and binding. The exporter relies heavily on established breeders for consistent supplies, and as such there is a guarantee that the exporter pays a reasonable price for the products. On the other hand, small-scale breeder/farmers living in remote villages away from Colombo, where almost all the exporters are concentrated, depend heavily on agents and intermediaries to aggregate “lots” together. Generally, this link between the agent/intermediary does not serve to inform small-scale breeders of the current prices paid by exporters, and breeders have no means to assess the fairness of the prices paid to them by agent/intermediaries; and this relationship is open to unfair practice.

That said, one exporter, who works directly with a community in a remote village in Lunugamvehera, Hambanthota district in southern Sri Lanka (the farmers in this community are the exporter’s out-growers), buys the product directly from them and extends interest-free loans to the farmers to increase their capacities (infrastructure), enabling them to increase production. The exporter deducts the loan from the products purchased from the farmers in reasonable installments (Rohan Fernando, pers. comm.). This is not typical, however, and vulnerable groups are generally at the mercy of agents and intermediaries of other exporters.

Attributes of the associations

The information for the SWOT analysis was obtained from interviews with key informants, notably:

- Chairs & Secretaries of SOFB/FAs in seven districts;
- Fish farmer members of SOFB/FAs;
- Director General and Directors of NAQDA;
- Regional Aquaculture Extension Officers of NAQDA;
- Credit institutions (Bank of Ceylon and Hatton National Bank);
- Exporters, local traders & final buyers i.e. consumers;
- Fish feed and chemicals and drugs suppliers;
- NARA (aquaculture research & development);
- Mass media organizations; and
- Non-governmental organizations (NGOs).

The SWOT analysis is derived from analysis of data obtained from desk research and key informant surveys conducted in seven districts plus the Mahaweli Areas Zones B and C.

Associations' Strengths

- Presence of a young and enthusiastic group of fish breeders and farmers in the districts who are capable of producing quality and international award-winning new varieties of ornamental fish for the export trade.
- All Associations have been properly constituted, with their charters based on the guidelines of the National Fisheries Federation (NFF).
- Every association is represented in the NFF by its Chair, Secretary and Treasurer.
- All Associations are registered under NAQDA.
- All members of associations are required to obtain a Management License from NAQDA to operate as fish farmers.
- Every association has a democratically elected Board (Mandalaya), comprising a Chair, Deputy Chair, Secretary, Deputy Secretary, Treasurer and board members.
- All Associations have an Association Charter (Constitution) with statements of Vision, Mission and Objectives.
- Relationships with science and technology institutions such as NAQDA and NARA are reasonably good, although mostly limited to training programmes and extension services.

- A regular membership fee is paid by active membership, which should be more than 15.
- Associations accounts are managed by a Treasurer. Accounts and budget are presented at monthly meetings of the Association. Complete transparency and accountability are maintained.
- Twelve meetings of the Board are conducted annually with the annual general meeting held at year's end to elect a new set of officers and to discuss next year's work plan. The budget and programme for the following year are approved at the annual general meeting.
- All Associations' accounts are audited by an external auditor.
- Members of the Associations have the opportunity to participate in capacity building programs conducted by NAQDA, NARA and Provincial Councils.
- All Associations have a legal license to operate, by virtue of registration with the NFF and NAQDA.
- Bank loans are available under 'Dheewara Diriya' loan scheme at subsidized interest rates of 5 percent. The usual interest rate applicable for such loans from the Bank of Ceylon is 9 percent. The MOFARD pays 4 percent to the Bank.
- Availability of 50 percent subsidies from Provincial Councils for the purchase of farm equipment and accessories, such as water pumps, air blowers, oxygen cylinders, shade nets and harvesting nets.

Associations' Weaknesses

- Linkages with relevant government agencies are limited for small-scale ornamental fish farmers compared to the large-scale farmers, producers and exporters.
- Reluctance of large-scale producers with links to exporters to join rural ornamental fish farmers associations.
- Limited or no relations with mass media as an Association. Individuals may write popular articles on various topics which may or may not be published.
- Lack of medium and long-term development plans for associations of small-scale ornamental fish farmers.
- Other than for the membership fees paid by the limited number of members of associations, there are no other sources of revenue. No funds are available for establishing a revolving fund.
- Lack of adequate research and development to assist small-scale breeder/producers, in areas such as fish feed development.
- No access to quality fish feed for ornamental fish by small-scale producers. What is available is expensive.
- No dedicated feed manufacture for ornamental fish in the country.
- No display of quality parameters printed on small packs less than 1kg to inform the buyer about the quality of fish feed used. Only bulk bags of 10 – 20 kg contain such information.
- Imported live feed such as artemia cyst is very expensive (LKR7 500 to 8 000 per 450 gm can of live feed).
- Artemia produced by the Lanka Salt Company Ltd is relatively cheaper but small farmers have no access to their product. Few retail outlets sell Lanka Salt Company artemia product. Farmers have to go to Hambanthota to purchase limited quantities.
- Obtaining virile brood stock may pose a problem. Most small-scale farmers purchase brood stock from either the Ornamental Fish Breeding and Training Center in Rambodagalle and/or from Ginigathhena AQDC in Sri Lanka. Others develop their own brood stock from good quality fry after selection. However, in the absence of a planned genetic selection program, virility of brooders developed, and their offspring, may deteriorate over time.

- Small-scale ornamental fish farmers lack knowledge on systematic genetic selection programmes necessary to produce quality virile brooders.
- Fish disease diagnostics, prevention and timely treatment are not always extended to or practiced by small-scale fish farmers. Disease diagnostic kits provided to fisheries associations by Provincial Councils in certain districts may not be available to all members of the associations. Sometimes the reagents in the kit, required to conduct diagnosis and treatment of a disease condition, are insufficient.
- Although BOC's credit facilities are available under the 'Dheewara Diriya' programme for ornamental fish farmers, problems arise when a small farmer applies for a loan. The main problem is the absence of a comprehensive project proposal or a business plan and acceptable collateral. A parental deed is not accepted to the Bank as collateral when the son of that family applies for a loan to establish or expand an ornamental fish facility.
- Banks do not accept the rural associations acting as guarantors, on behalf of their members.
- Small-scale fish farmers and out growers are always at the mercy of intermediaries and exporters. This is due mainly to lack of awareness of prevailing world market prices.
- Most small-scale farmers/producers supply the local market, where the prices are comparatively low.
- Some large-scale producers flood the market with carp varieties, and a reason for price fluctuations seen.
- The depreciation of the LKR against the USD benefitted the exporter, but benefits are not passed on to the farmer.
- Prices paid for ornamental fish supplies by various buyers, especially guppies for the export or local market, have hardly changed over the past decade. However, prices of all other inputs have gone up.
- The small-scale farmer is not able to demand higher prices from buyers or their agents, due to the practice of undercutting among farmers/producers.
- No information on daily or weekly price fluctuations for ornamental fish available from private or government sources.
- There is lack of land available for expansion of facilities by association members.
- There is an overall sector weakness in the sector, due to the absence of a dedicated Division within NAQDA to address the multifaceted problems, especially of small-scale ornamental fish farmers and their associations.

Associations' Opportunities

- Presence of both tropical and cool climatic conditions, which are conducive for farming both warm and cold-water ornamental fish species. Pure and cool waters cascading from the mountains into the streams and rivers are ideal for breeding and rearing a wide range of endemic and exotic ornamental fish species and aquatic plants.
- Presence of infrastructure facilities, such as an efficient road network throughout the country connecting to Colombo city, and a country-wide coverage by the telecommunications network and internet facilities.
- Presence of a highly efficient product handling facility at Colombo airport.
- Technical assistance and capacity building programmes are available from NAQDA and NARA.
- There is availability of financial assistance schemes from SLEDB to exporters/potential exporters/breeder/farmers to participate in international trade fairs such as those in Germany (Interzoo) and Singapore (Aquarama).
- Opportunity to participate in the 'Min Visithuru' ornamental and aquatic plants exhibition organized annually by NAQDA. Enables breeders, farmers and out growers to meet exporters and other traders.

- Availability of financial grants from SLEDB for small-scale farmer/producer of Associations.
- Presence of a relatively large producer base in each district to cater to exports from Sri Lanka.
- Existence of capacity building and research institutes, such as NAQDA, NARA and the Wayamba University that assist small-scale producers and their associations.
- An expanding world demand for freshwater ornamental fish and aquatic plants.

Prospects of the SOFB/FAs

The prospects for members of SOFB/FAs mainly rest on market development and the availability and timeliness of market information and information on fish species in demand in world markets. Breeders and out growers complain of the uncertainty they face with not knowing the price of their fish at any given time. Coordination between production and marketing is lacking in most instances to meet the needs of exporters. Buyers often refuse to buy the fish, or they offer a low price, citing lack of demand or over-supply, even to fish breeders and out growers under contract to agents or exporters. For this reason, it may be difficult to link local market supply to market demand at the retail end.

The above situation is aggravated due to the lack of information on species in demand, when breeder/farmers may produce the wrong variety of fish at any given time. The SOFB/FAs have a key role to play, by availing themselves of opportunities presented by institutions, such as the SLEDB and NAQDA's ornamental fish Exchange Center and imparting that knowledge through seminars within their respective district, with the assistance of the PC. Consistent intervention by NAQDA, to train the fish breeder/farmers and out growers in systematic genetic replenishment of brood stock, and availing them the opportunity to participate at local ornamental fish and aquatic plants trade exhibitions at concessionary rates, would pave the way for the members of the SOFB/FAs to operate their facilities at an elevated level; and to produce the different species of ornamental fish in demand in world markets. NARA and SLEDB can complement this task by addressing the research and development needs and disseminating product development and market information, along with information on financial assistance schemes to small-scale fish breeder/farmers and out growers. The members of SOFB/FAs also complain of the high Aquaculture Management License (AML) annual fee (i.e. LKR1 500) imposed by NAQDA, without which a farmer cannot legally operate. In addition to this high annual fee, the high cost of joining a training course of NAQDA is considered by the SOFB/FAs as a deterrent to enrollment, despite it being needed to sustain their businesses.

Threats to associations

- Existence of a large-scale producer/exporter monopoly, which the associations of small-scale producers find difficult to overcome.
- Flooding local markets with certain high demand varieties leads to depressed prices in local markets, and lack of knowledge in price variations for different varieties of ornamental fish.
- The lack of new varieties of ornamental fish makes it difficult to compete with other countries in the region, such as Thailand.
- Lack of inter-association relationships at the district level, reduces achievement of goals that could be beneficial for small-scale producers and their associations.
- Progressive reduction in membership of small-scale ornamental fish farmers associations and inability to retain membership.
- High annual fee charged by NAQDA for the issue of Aquaculture Management License, made compulsory for all aquaculture ventures.

IDENTIFICATION AND DESCRIPTION OF SOCIAL, ECONOMIC AND POLITICAL RISKS

Social & economic implications

The fish breeders, farmers and out growers belong to agriculture communities, are wage earners and white or blue-collar workers. The agricultural communities have uncultivated lands or excess lands on which could be built mud ponds or cement tanks for grow out. The wage earners and white-collar workers would engage in out-growing or fish breeding if they had sufficient lands belonging to their families (parents' land) or acquired through dowry (in marriage). While knowledge of breeding of ornamental fish varieties and rearing, as a hobby, is needed to engage in breeding, a knowledge of rearing of ornamental fish would suffice for out growers. Ornamental fish farming is an acceptable enterprise that all communities can engage in without any religious or gender bias. This vocation is very popular in Colombo and its suburbs in the Western Province, where freshwater resources are abundant. Other areas are those in semi-arid and arid zones, where water is supplied through the Mahaveli river diversion scheme. The upcountry areas are most suitable too, with sufficient water resources but a colder climate, where cold water fish species could be reared.

The main social risk in ornamental fish farming is the potential for breakdown of the household economy and upkeep of the family, when failures occur or where these are repeated. This can occur when disease is prevalent in fish, resulting in fish mortality; and from drying out of ponds due to heavy droughts experienced in semi-arid and arid zones. In certain instances, the inability of the farmers to sell their products at reasonable prices because of exploitation by buyers, may also bring about social and economic downfall at an individual level, as has happened in Mahaveli areas. Property, kept as collateral, may be forfeit if loans obtained from Banks cannot be serviced, due to the low price received from fish sales, or losses due to disease, for example. Many farmers have given up their enterprises due to economic losses for these reasons and this has also invariably affected the SOFB/FAs and is one of the main reasons for the falling membership of associations.

On a more positive note, ornamental fish breeding/farming and out-growing can be a profitable enterprise, even where products are sold only to the local market. The most important aspect is selection of the right variety for breeding and farming, which are wanted locally, or can be sold to the export trade by supplying the exporters directly, or their agents/intermediaries. Failure to sell will affect small-scale ornamental fish breeder/farmers and out growers especially. For fish breeder/farmers and out growers who makes a substantial capital and labour investment in pond construction and who have also invested heavily on stocks, feed, fertilizer and disease treatments, a loss in sales of farmed fish would represent a real cash loss, resulting in a considerable increase in indebtedness. Local market failure appears to be one of the greatest and most immediate threats to livelihoods (Watson, 2000).

Political implications

Acts that brought into being the MFARD, the DFARD and NAQDA contained no direct mandate for the development and promotion of ornamental fish and aquatic plants. Due to its export potential and the capacity to earn foreign exchange, however, the interest of governments ruling the country at any given time have been aroused, and various random measures have been taken by the MFARD and NAQDA to develop the industry, to increase its export potential.

All SOFB/FAs indicated that they have not engaged in any political activity. It was recognized, however, that benefits to SOFB/FAs will most likely accrue if that association happens to have supported a political party in local government elections (PC elections), and for election of members to the Council of Ministers. In such an

instance, if that party came to power, then may feel obliged to assist the association in various ways, including giving first preference to offer subsidies and land to farmers to develop their livelihoods. The other associations may find it difficult to obtain benefits because of their allegiance to the opposite party, for example.

The risk to such farmers who are members of that SOFB/FAs is when the political party is changed after an election. When this happens, the farmers who benefitted under the earlier PC may not find favor again when a new PC is appointed. As a result, the businesses of certain farmers may collapse. However, more prudent fish farmers who had ventured into the business with previous experience and technical knowhow, can overcome these obstacles and move forward.

The other political risk is associated with the lack of a National Policy, by successive governments of Sri Lanka, for implementing the various mandates for which the governments are elected. Policy decisions taken by one government, for example to help SMEs of various sectors and especially related to making available concessionary financial schemes under which the SMEs would be benefitted, those SMEs who benefitted from the schemes face the risk of such schemes being repealed by the next government. This can typically mean SMEs suddenly find that funds obtained at the initial stage, to develop their enterprises, has stopped; which invariably disrupts the development of their enterprises. An example of a funding scheme being abolished was the 'Divineguma' financial assistance scheme, designed to help small-scale ornamental fish farmers expand their infrastructure facilities under one Government, which was discontinued when the present government assumed office.

DISCUSSION AND ANALYSIS OF THE SEB ATTRIBUTES OF THE SOFB/FAS

The following is an analysis of SEB attributes, based on the study guidelines provided by FAO.

Strong

All SOFB/FAs satisfied the criteria that make them strong associations, and was a general view supported by stakeholders at the meeting conducted at NAQDA on the 19th January 2017. All associations were armed with a strong constitution based on the guidelines provided by the National Fisheries Federation (NFF), part of the MFARD. Secondly, all associations had a clear vision and mission statements and objectives, along with complete transparency in accounting procedures, with the budgets of respective associations being presented to its members every month. Further, these accounts are being audited by an independent entity, ensuring transparency. The members of the association Board are democratically elected during the year end annual general meeting. All rural associations are represented at the district level through District sub-committees containing association board members; and represented nationally through invitation from the NFF, extended to the district sub-committees' Chairman and Secretary. Although rural associations have no direct relationship with media organizations that could be used as an instrument to publicize grievances, some members of more affluent associations may publish popular articles on ornamental fish breeding, on new varieties and on various other topics, in newspapers and some local magazines. They may also, from time to time, be invited to cover district-wise events such as ornamental fish exhibitions organized by them.

Empowered

Empowerment within small-scale ornamental associations in Sri Lanka is derived from several components, many of which the associations are perceived not to possess, and during the interviews conducted with officials of the associations and the fish breeder/farmers of ornamental fish the general feeling was one of discontent and disillusion. Typically, this was because, despite the potential for empowerment that the associations

have, farmers had not had specific grievances dealt with, including not obtaining favorable prices for their products, no funds for expansion of their infrastructure capacities, few virile and productive broodstock necessary to produce export quality juveniles, no quality fish feeds for growth, no easy access to chemicals and medicine required for prevention and treatment of diseases. In general, if an association is not empowered is it proposed they can be neither strong or sustainable also.

Despite not being able to address specific issues through the association, some individuals through their own resilience and hard work had developed their facilities over the years and today have become top rung exporters of ornamental fish. However, such success stories are related to exporters, who at one time belonged to the small-scale fish farming community living in and around the suburbs of Colombo city and having access to other facilities which could make an enterprise successful. This has not been the case with other small-scale ornamental fish breeder/farmers, who having associated in an ad-hoc way, and living in rural areas distant from Colombo city, were not so fortunate.

Without empowerment SOFB/FAs cannot uplift the livelihoods of small-scale ornamental fish farmers through a systematic delivery mechanism for poverty alleviation, and people will remain trapped within their respective circumstances. Ben-Caleb *et al.* (2013) also define empowerment as 'increasing the socio-economic cum political strength of SMEs to carry out value adding operations', that include the following:

Financial empowerment: As noted earlier, the most important aspect of empowering SOFB/FAs is for such associations to maintain a solid revolving fund. This is possible if the small-scale ornamental fish breeders/farmers have access to financial resources to expand and carry out their operations. Inadequate funds are the most influential inhibitor to SMEs development (Olutunla & Obamuyi, 2008), so money and capital market policies should be formulated to give SMEs better access to funds, through reduction of Bank lending rates to the same level applied to large-scale enterprises. The provision of development loans could be an instrument in this direction. However, misuse of such funds should be prevented through an efficient monitoring programme.

Microcredit has also been recognized as one of the effective strategies for poverty alleviation in third world countries, especially for low and middle-income communities engaged in supplementary income livelihoods, such as ornamental fish breeding/farming and out growing. Microcredit has the potential for the empowerment of the poor and the improvement of incomes of economically deprived communities.

In Sri Lanka, the MFARD in association with the BOC, and the MASL in association with the BOC, PDB and the PB, have developed a scheme to provide loans at 5 percent interest to small-scale ornamental fish farmers and out growers in all districts, including Mahaweli Zones. The arrangement is that the normal microcredit lending rate of nine percent by the BOC is subsidized by the MFARD and MASL to the tune of four percent so that the small-scale breeder/farmers and out growers only have to pay five percent interest on the loan. There are no other financial schemes to assist this sector, except normal loan schemes applicable to all sectors, with interest rates as high as 14 to 18 percent. In other instances, various NGOs have provided assistance to Tsunami victims (in 2004), to propagate ornamental fish breeding and rearing in the Hambanthota district (the east coast was the most affected by the Tsunami), by offering grants for ornamental fish farming and out growing as a livelihood.

Infrastructural empowerment: One of the positive factors mentioned under 'Opportunities' for the ornamental fish farming and export sector is the availability of basic infrastructure facilities in rural and urban areas. In Sri Lanka, these infrastructure facilities are already in place, with an efficient road and rail network, telecommunications

and internet facilities countrywide. However, the tariff on electricity for industries are higher than for domestic users, which is not affordable for small farmers. If these high tariffs can be adjusted, the savings for farmers could be put into productive operations. The result would be expanded operations, increased employment, higher contribution to the community, overall national development and consequently, steps toward poverty alleviation.

Educational empowerment: Most small-scale ornamental fish breeder/farmers and out growers, promoters of other SMEs, and potential entrepreneurs have inadequate education and training (Ojo, 2006). The consequences of this inadequacy are production of poor feasibility reports, poor management skills and inability to create of proper accounting procedures, which are prerequisites for SMEs to gain access to Bank funds (Olutunla & Obamuyi, 2008). In this regard the small-scale ornamental fish producers should be encouraged to acquire a minimum level of training, even in an informal setting. There is a precedence, with training programmes at an informal level introduced through extension officers under the ARDQIP, funded by ADB, and provided to fishers of CBF in seasonal tanks in the mid-2000s. Besides this, other vocational training institutes under the government can provide free and compulsory courses for small-scale ornamental fish producers and other SMEs in general. Basics should include knowledge and utilization of information and communication technology (ICT). ICT has been described as an essential mechanism for SMEs to overcome low productivity, lack of competitiveness and limited skills of owners and workers, (Ben-Caleb *et al.*, 2013), providing there is access after training.

Socio-economic empowerment: There was consensus at the stakeholders' workshop that operating under 'cluster' based production was best for small-scale ornamental fish breeders/farmers and out growers. Clustering has shown to be positive in the shrimp farming sector in Batticaloa district in the Eastern Province as a mitigatory measure to overcome disease problems, for example. Under socio-economic empowerment, 'clustering' and access to markets have been identified as key factors. 'Clustering' of small-scale ornamental fish breeder/farmers and out growers, and of all the SOFB/FAs within a district, could provide a platform for creating and adopting innovations among small producers. Instead of all farmers producing all varieties of fish needed by the local and export trade, the fish in demand in the overseas and local markets could be divided among the fish farmers in a 'cluster', thereby ensuring the production of adequate quantities of each variety in demand. This will improve competitiveness and enhance the innovativeness among producers, develop interaction and dependence on one another, and generate value added. Clustering has proved rewarding in most industrialized and some emerging economies (Ravarini, *et al.*, 2005).

Political empowerment: Lack of a National Policy, policy inconsistencies, political instability and a lack of political will are among the major reasons for failure of many poverty reduction programs. Therefore, appropriate and effective policy packages backed by political will that outlive the tenure of any specific government in power, are necessary for SMEs development. In Sri Lanka an example of a policy lapse was the withdrawal by a new government of the 'Divineguma' financial assistance scheme developed for small-scale ornamental fish farmers by the previous government.

Institutional empowerment: An institutional framework is imperative to foster the development of SMEs (including SOFB/FAs) in developing countries (Ojo, 2006). A Ministry or Department for micro, small and medium enterprises, with responsibility to provide support to SMEs in areas such as, 1) training in several technical grades, 2) creation of favorable market conditions, 3) procurement, supply and distribution of

local and imported machinery and raw materials and 4) provision of institutional credit facilities, along with an ability to harness the activities of relevant agencies associated with SMEs development, would go a long way in sustaining SOFB/FAs and SMEs.

The SWOT analysis revealed that the weaknesses of the SOFB/FAs far outweigh their strengths and opportunities. The main weaknesses of the SOFB/FAs and their members are 1) their inability to secure Bank loans, 2) poor access to good quality, broodstock, fish feed, chemicals, 3) absence of integration among associations within each district, 4) lack of a dedicated agency to formulate policy, 5) limited access to other government institutions, 6) lack of training on the preparation of development plans, project proposals and business plans. These weaknesses are instruments of empowerment and improvements in them would undoubtedly empower the ornamental fish associations.

Sustainable

All the SOFB/FAs interviewed said they had nearly fifty percent of the attribute criteria necessary to establish their sustainability. However, the important criteria, namely, 1) a medium and long-term development plan and strategy, 2) revenue from other sources, 3) financial assets and 4) a strategy to attract and retain membership through provision of incentives, were found to be weakly met. These “negative” criteria were directly related to the six instruments of empowerment described above, that if overcome would become positive, ensuring the sustainability of the associations.

The sustainability of SOFB/FAs greatly depends on the ability of the Board to retain membership. In fact, SOFB/FAs must function as SMEs, by ensuring that its members act and function as the employees of an SME. This requires the SOFB/FAs to think beyond just being an association, conducting monthly meetings and culminating in the annual general meeting with election of new office bearers for the following year. Instead, it must function as an enterprise in which each member is expected to perform a specific role (under the ‘Cluster’ concept). Individual SOFB/FAs acting as an SME is difficult for various reasons, primarily because members of any given association belong to different socio-economic levels, which is determined by different levels of income. As mentioned previously, some members are already employed, either in government or the private sector, while others are agriculture farmers and daily wage earners. The Chair and the Secretary are generally people of some social standing and most often engaged in some public service activity as government employees. As a result, they can hardly devote their full-time attention to the development of the association, much less its operation as an SME.

One way the association could function as an SME is by the integration of associations in a district, the integrated body functioning as an SME company or a cooperative. Integration will pave the way for the parent association to function as an SME or a cooperative, including electing a Chair and a Board of Directors from among the overall membership in the whole district. All the rest of the members of the association could act as employees of the SME (parent association) and commence production of ornamental fish in a ‘Cluster’ system described, similar to that tried (and failed) in the Wahaweli area (Box 5), but this time through a well-constructed and preconceived action plan, developed with the participation of all members of the integrated associations (socio-economic empowerment). The SME or cooperative association should next develop a central infrastructure, with concrete tanks as a holding facility to stock different varieties of ornamental fish produced by the members as exhibits for marketing and sale to exporters or their agents. By acting co-operatively, oversupply of the market could be avoided with proper management of production, which would otherwise depress prices or lead to fish remaining unsold. Also, if different farmers produced different fish species, they can effectively act as consolidators to meet the requirements of buyers. This would allow farmers to be in

BOX 5

Success story: Mr Wimalasiri

Name of breeder/farmer/collector/seller: **Mr D.M. Wimalasiri.**

Former Employment: Batangala Training Center/National Youth Council Services, as instructor in rearing and breeding of ornamental fish, and separately, private small-scale supply of fry, mainly to Mahaweli fish farmers for out-growing.



When the profitability of his micro-business realized, Mr Wimalasiri gave up his job as Trainer/Instructor at the Batangala farm and ventured out as a breeder and supplier of fish fry to Mahaweli farmers. He started in 1995, with his own farm on 7 acres of land by the Mahaweli Authority (MA), establishing his own hatchery. The fry produced at the hatchery were given to farmers in the Mahaweli area for grow out and after two months, the marketable size fingerlings were purchased by him and sold in Colombo to retail outlets and to exporters. His business was based on a 'cluster' concept, selecting 5 villages in the Mahaweli areas and initiating development of village-scale ornamental fish farmer associations within each village. The fish produced by farmers in each association were purchased by Mr Wimalasiri and sold to Colombo retail outlets. The funds received by the associations in each village were distributed equitably among the farmers according to the quantities supplied by them, after deducting a small percentage as a commission (2 percent), which formed a revolving account for that association. The process continued for several years but discontinued due to mismanagement by the associations and disunity among its members. Associations formed on an ad-hoc basis was done without due diligence, and absence of an institution to monitor the activities of the associations. Today, Mr Wimalasiri purchases fingerlings brought to him by any farmer in the Mahaweli systems B and C and stock them in his collection center for marketing in Colombo and its suburbs. Mr Wimalasiri has maintained person empowerment, but as a personal success story, provides a salutary lesson that not all associations have this.



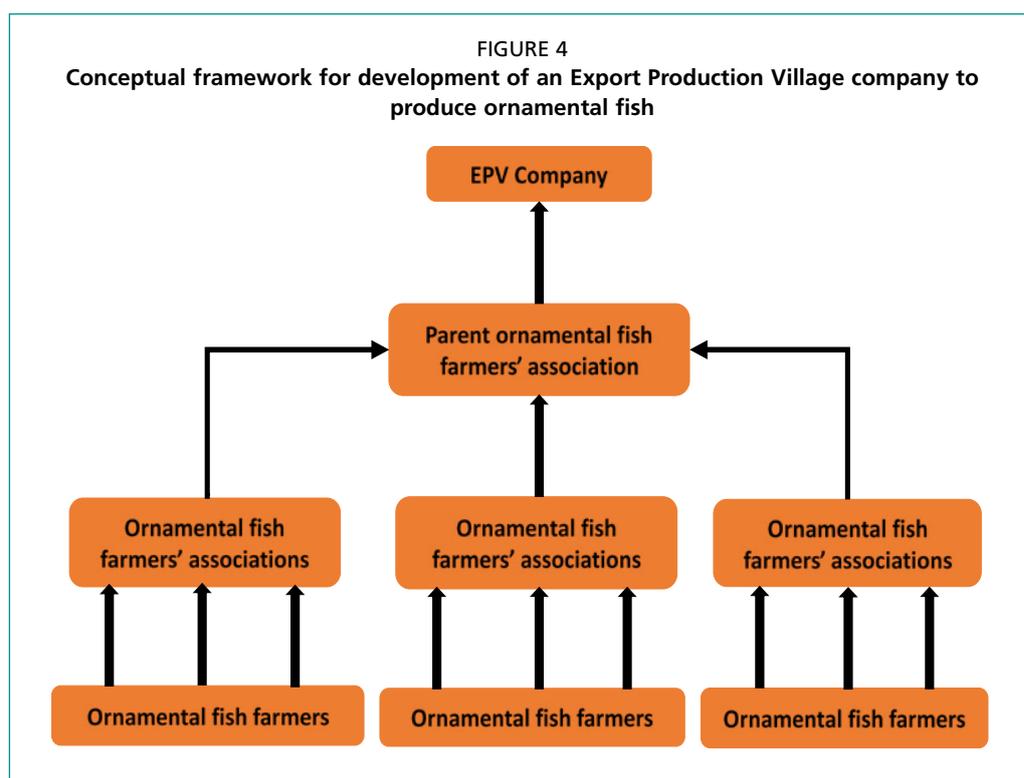
a stronger position when negotiating prices (Watson, 2000). The company may charge a commission on sales of ornamental fish to exporters from each member and deposit the amount in the company's revolving fund, thereby creating a financial asset for the company. This should help it to become socio-economically strong, in the long term.

A similar concept was developed by the SLEDB in Dambadeniya village in the Kurunegala district in the North-West Province of Sri Lanka, under the Export Production Village (EPV) scheme. The scheme was highly successful and the Dambadeniya Exports Products Development Company Ltd generated income and profits for its members, similar to an SME. However, such enterprises needed the government backing and regular monitoring to ensure their sustainability, which was provided by the SLEDB under the regime in power initially, but with a change of government in the mid-1990s, SLEDBs priorities were changed and the activities of this company decelerated as a result of these changed priorities. Despite this, the company is still in existence. For this concept to proceed without interruption therefore, the need for a national government policy (political empowerment) is imperative. Further, being integrated and now functioning as a registered Company, the problem of obtaining loans for its members via the Company is made overcome. Government could also intervene and negotiate with Banks to provide soft loans at lower interest to such Companies (financial empowerment). The members of the newly formed Company should be encouraged to undergo skills development and training in ICT, financial literacy (which is considered as a key factor in sustainability of SMEs according to Nunoo & Andoh, 2012), project proposal preparation, business plan development and most importantly in the preparation of short, medium and long-term development plans for the new Company (educational empowerment). Finally, NAQDA as a government institution should amend its Act to include a policy provision on SOFB/FAs being formed into a Cooperative Associations/Companies within districts. NAQDA should also initiate technical training in several areas such as genetic improvement of broodstock, fish feed preparation, fish, disease prevention and treatment, and others. NAQDA, in collaboration with the SLEDB should also provide opportunities for members of the Cooperative Association/Company to attend international trade fairs for market development and to acquire market information. Other areas of assistance by NAQDA would be to facilitate the procurement, supply and distribution of local and imported machinery and raw materials, and provision of easy institutional credit. It could harness all activities of relevant agencies associated with SMEs development (institutional empowerment) to enable the small-scale ornamental fish breeder/farmer and out growers to improve their profitability through the newly formed cooperative association/company.

Evidence of the workability of this SME company concept and its success, was seen during a visit, made by the Consultant, to Mahaweli Authority Zones B and C. In these Zones there were several ornamental fish outgrower farmers and breeders producing various ornamental fish varieties, where gold fish, shubunkins, red comets and carps predominated. A marketing and sales programme was subsequently devised by an individual (Box 4), who was successful in developing small associations of fish farmers in certain villages in zones B and C and marketing their products to exporters/local sales agents. What is needed to sustain the process, however, is institutional empowerment for the association/SME, and that their activities are monitored to ensure that they adhere to strict norms set by the institution, which in this case would fall on the Project Management Offices of the MA and the respective Fisheries and Livestock Development Officers in charge of each Zone.

CONCLUSIONS

Analysis of the strengths, empowerment and sustainability of small-scale ornamental fish farmers' associations has revealed that, of the three attributes, the most significant is empowerment. The details on how associations or SMEs could be empowered has been established. There is, perhaps, an argument over whether empowerment of associations is derived from members, or vice versa, but by empowering an association, the benefits of empowerment can be transferred equitably among its members. Achievement of



empowerment of associations is predicated on a need to integrate associations district-wise, and for the amalgamated parent association to function as an SME (Figure 4). This had proved successful under the EPV scheme initiated by the SLEDB in the '90s. A national policy that is not subject to change with each change of government, a political will, and close monitoring of the effects of the policy are prerequisites to any associations effectiveness and success.

The main issues that hinder empowerment of associations and their members are, 1) access to finance (need for improved financial empowerment); 2) access to training, both technical and administrative (need for improved educational empowerment); 3) lack of collaborative efforts among members of associations and between associations (need for improved socio-economic empowerment); 4) lack of a dedicated organization to formulate plans (instead of *ad hoc*) and policy directives and to service the small-scale ornamental fish farmers and out growers (for greater institutional empowerment); and 5) the lack of firm government policies to address the various issues confronting the farming community and the associations which represent them (for improved political empowerment). These issues were confirmed by the stakeholders during the stakeholders' workshop.

The main constraints highlighted by stakeholders were their inability to access (a) funds from banks at low interest rates; (b) good quality broodstock; (c) good quality fish feeds, chemicals and medicinal drugs and farming equipment at reasonable prices; (d) disease diagnosis at the appropriate time; (e) international markets and international prices for their products; and (f) their vulnerability to exploitation by certain exporters and their agents/intermediaries. All these issues figure prominently, under the potential to improve the empowerment of SOFB/FAs.

RECOMMENDATIONS

Policy-oriented recommendations addressed to government

- NAQDA Act to be amended to create a separate Division to service the needs of ornamental producers;

- all associations of small-scale ornamental fish farmers to be registered under NAQDA;
- ornamental fish & aquatic plants production to be included as a devolved subject in Provincial Councils;
- a policy document to be drafted, that addresses production of ornamental fish and aquatic plants for the export trade;
- need to extend the present 'Dheewara diriya' loan scheme to other commercial Banks such as Grameen Bank, Sanasa Development Bank and others;
- Provincial Council's financial assistance schemes to be channeled through other commercial banks such as Grameen and Sanasa;
- large scale producers, exporters and other input suppliers and lending institutions to be invited to policy and technical meetings of relevant government agencies;
- meetings to be chaired by the District Secretary of the Provincial Council;
- assist associations to train its members on business planning and project proposal development; and
- negotiate with the Treasury to impose zero taxation on imported fish feeds for the ornamental fish and aquatic plant industry.

Action-oriented recommendations addressed to associations

- all associations of small-scale ornamental fish farmers should be registered under NAQDA;
- integrate rural ornamental fisheries Associations into one parent Association within a district and function under the EPV concept. Details to be obtained from the SLEDB. The rural ornamental fisheries Associations become sub-associations of this parent association.
- devise a methodology to enable ornamental fish farmers within a district to operate their farms under a 'cluster' concept. Assistance to be obtained from NAQDA extension staff.
- each integrated parent association in a district prepares a long-term development plan inclusive of an action plan for the entire district; and
- the parent-association within a district to monitor the action plan every 3 months.

Recommendations addressed to NAQDA/NARA/SLEDB

- assist each district to prepare a long-term development plan, which consists of shorter-term action plans for the entire district;
- assist the parent association within a district to monitor the action plan every three months;
- assist associations to train its members on business planning and project proposal development;
- negotiate with commercial banks for the introduction of soft loan schemes for small-scale fish farmers;
- Identify sources of quality ornamental fish feed suppliers and make such information available to Associations;
- research and technology institutions should test the fish feeds for proximate composition and, if necessary, develop new diets using such feeds as base materials;
- testing such newly developed feed for growth performance of ornamental fish and make the research data available to fish farmers through their associations;
- collect information on fish feed ingredients and make available such data to farmers' Associations;
- negotiate with Lanka Salt Ltd. to increase production of artemia in Hambanthota salterns. Such products should be made available through retail outlets;

- place a high priority on the development of quality brood stock through a genetic selection programme in Rambodagalle and Ginigathhena;
- make available such quality brood stock to fish farmers through their Associations;
- conduct training programmes on selective breeding for fish farmers through their associations;
- negotiate with suppliers for bulk purchase of chemicals for pond disinfection through Associations;
- conduct awareness programmes on the quality and variety of ornamental fish required by the export trade;
- conduct awareness programmes on international demand and market prices for different varieties of ornamental fish; and
- support exposure of NAQDA Extension Officers and Chairs and Secretaries of Associations to international trade fairs. (such as ‘Aquarama’ and ‘Interzoo’).

Recommendations addressed to MASL

- integrate ornamental fish farmers’ associations in each Zone and form one parent association;
- elect a Board, comprising a complete set of officers – Chairman, Secretary, Treasurer, etc.;
- train the Board members in SME development and incorporate the association into a company;
- Inculcate the ‘cluster’ concept in the farmers thinking and the associations’ strategies, encouraging the members to produce two to three varieties of ornamental fish each;
- complete the construction of already commenced ornamental fish collection centers within the MA regional office premises;
- select a farmer with entrepreneurial skills with a suitable staff selected from among the fish farmers to carry out the activities of the fish collection centre, under the supervision of an FLDO of the MA;
- stock the tanks in the collection centre with the ornamental fish produced by the farmers for subsequent marketing;
- All the SMEs established in the respective Zones should encourage the respective ornamental fish farmers under them to supply marketable ornamental fish to the collection center;
- sales and marketing should be carried out by the collection centre under the guidance of the MA Regional Office;
- provide training to the staff of the collection centre on entrepreneurial skills, ICT and business plan/project proposal development;
- continue assistance to farmers to purchase farming accessories on a 50 percent subsidy; and
- assist ornamental fish farmers to purchase imported fish feed and chemicals through the collection centre.

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Strengthening, empowering and sustaining small-scale aquaculture associations in Viet Nam: a case study in Nha Trang, Khanh Hoa, Viet Nam

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Thai Ngoc, C. 2020. Strengthening, empowering and sustaining small-scale aquaculture associations in Viet Nam: a case study in Nha Trang, Khanh Hoa, Viet Nam. In M.R. Hasan, P.B. Bueno & R.A. Corner, eds. *Strengthening, empowering and sustaining of small-scale aquaculture farmers' associations*, pp. 133-145. FAO Fisheries and Aquaculture Technical Paper No. 655. Rome, FAO. 190 pp.

ABSTRACT

The Province of Khanh Hoa is an important fishery district in Viet Nam, containing many fish farmers and hatchery operators. Fishery associations have a long history, dating back to the 1990's, but are generally heterogenous groups of fish farmers, hatchery operators from the aquaculture sector, along with capture fishers and seafood processors. All are members of one of three regional associations, coordinated through the provincial Khanh Hoa Fisheries Association (KHAFSA), as an apex organization. A study was undertaken to assess the effectiveness of these associations against what are considered to be the critical attributes of fishery associations, namely strength, empowerment and sustainability (SEB), supported by underlying criteria. This was evaluated through key informant interviews using a standardized format and desk research, an analysis of the strengths, weaknesses, opportunities and threats (SWOT analysis) to associations, and consideration of the extent to which the associations in Khanh Hoa adhere to the SEB criteria. The study highlighted that although relatively strong in functional terms, such as having an elected committee, good participation from stakeholders and international agencies; and relatively empowered, working closely with government departments, for example; associations are probably unsustainable in their current form, due to the inactivity of members, lack of financial resources and due to the heterogeneity of the associations which makes it difficult to develop projects that support all members and to retain member interest. The outcome of the study is a number of recommendation aimed at government, including the need to update the Fisheries Law to reflect international standards in a largely export market, and consideration of development of a separate fish farming and hatchery operator association; and action-oriented recommendations to associations including the need to improve human capacity, improve infrastructure and above all to develop sources of income so associations can remain sustainable for the long-term.

INTRODUCTION

Khanh Hoa is a coastal province in Central South Viet Nam. It has a high potential for fisheries and aquaculture and with 385 km of coastline, hundreds of square kilometers of seawater, and three large bays, Khanh Hoa Province has become the top marine-culture producing area in Viet Nam. Fisheries associations in Khanh Hoa Province have been established since the 1990s, to support and enhance Viet Nam's development in aquaculture. These associations for small-scale farmers have faced internal difficulties and external challenges, however, and this study aimed to understand these issues, and to identify factors that contribute to the strengthening, empowerment and sustainability of small-scale aquaculture/fisheries associations in Viet Nam.

METHODOLOGY

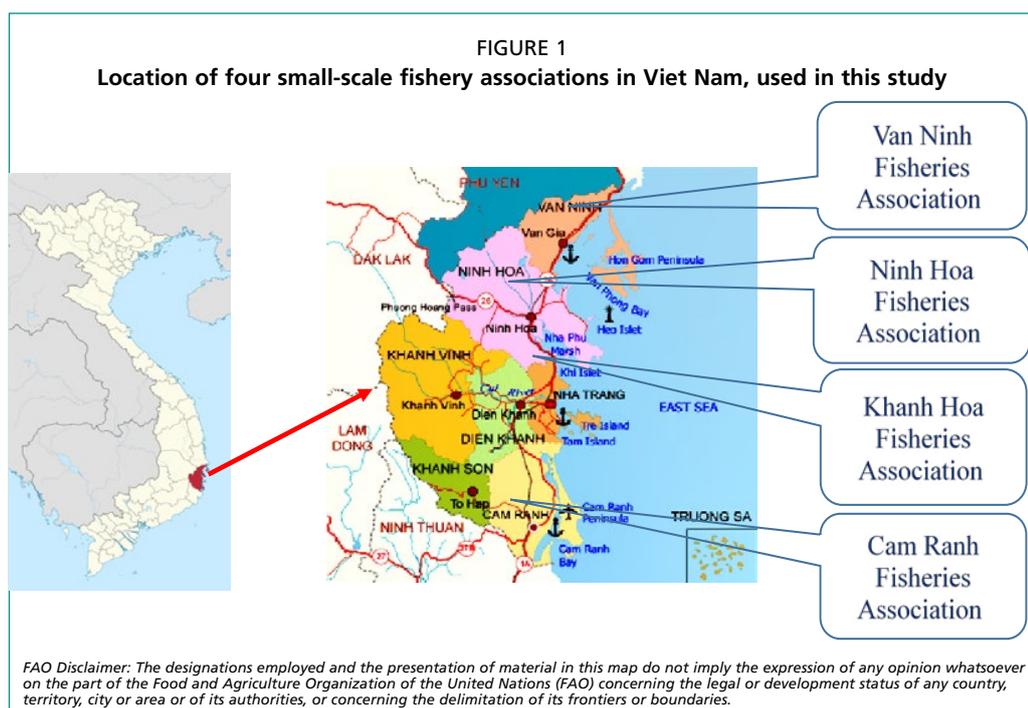
The study was undertaken over January and February 2017, during which a desk review, key informant surveys, and analysis of collected data was undertaken to identify the key internal and external factors of which define the strengths, weaknesses, opportunities and threats (SWOT analysis) to Fisheries Associations in Khanh Hoa Province.

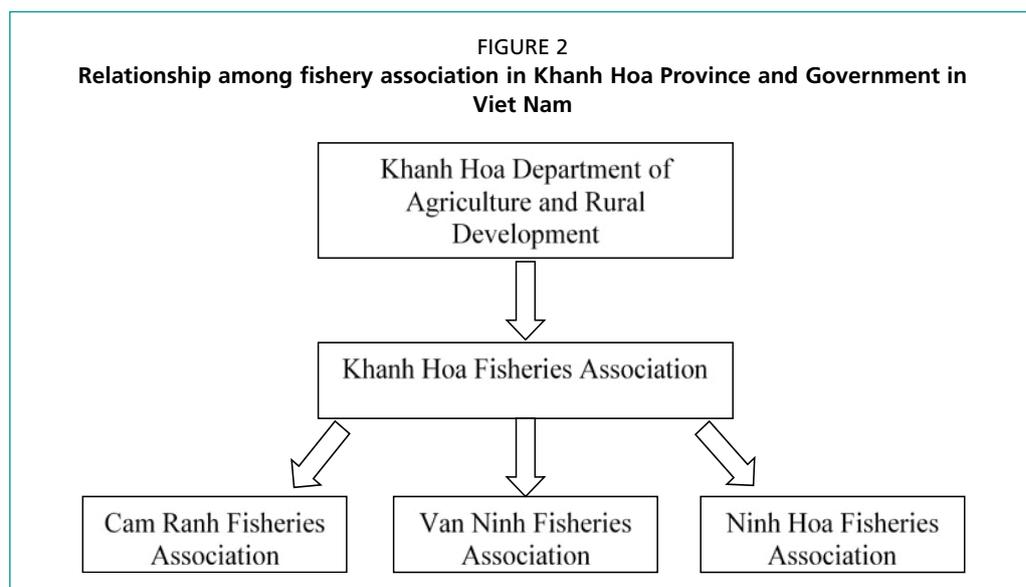
Information on four fisheries associations in Khanh Hoa Province (Figure 1) was gathered; namely:

- Khanh Hoa Fisheries Association (KHAFSA) in Nha Trang City;
- Cam Ranh Fisheries Association in Cam Ranh City;
- Ninh Hoa Fisheries Association in Ninh Hoa Town; and
- Van Ninh Fisheries Association (in Van Ninh District).

Khanh Hoa Fisheries Association is the provincial level association, and the remaining three associations are district-level associations, under the Khanh Hoa association (Figure 2).

Officers and members of the four related associations were interviewed (Box 1) using a prepared questionnaire. A SWOT matrix was developed based on the key informant survey and group discussions to show internal strengths and weaknesses and external opportunities and threats. Four small workshops, one for each association, were convened with five to seven participants; organized to validate the SWOT analysis, and to identify, describe and explain key factors that constrain the strengthening,



**BOX 1****Key informant interview and group meeting attendees****Interviews:**

| Dates | Name of association | Key informants |
|----------------------------|---------------------------------|--|
| 06 th Feb. 2017 | Khanh Hoa Fisheries Association | Mr Vo Thien Lang President of Khanh Hoa Fisheries Association (01 questionnaire form) |
| 08 th Feb. 2017 | Cam Ranh Fisheries Association | Ms Nguyen Thi Huong – Deputy President of Cam Ranh Fisheries Association (01 questionnaire form) |
| 10 th Feb. 2017 | Ninh Hoa Fisheries Association | Mr Nguyen Van Cuong - Deputy President of Ninh Hoa Fisheries Association (01 questionnaire form) |
| 14 th Feb. 2017 | Van Ninh Fisheries Association | Mr Dang Tri Thong – Secretary of Van Ninh Fisheries Association (01 questionnaire form) |

Group discussions:

| Date | Meeting revenue | Name of participants |
|----------------------------|---------------------------------------|--|
| 20 th Feb. 2017 | People Committee of Van Ninh District | Khanh Hoa Fisheries Association: 1. Mr Vo Thien Lang, President 2. Mr Vu Duc Quy - Vice Chair |
| | | Cam Ranh Fisheries Association: 3. Ms Nguyen Thi Huong, Deputy President 4. Mr Tran Van Ot, Deputy President |
| | | Ninh Hoa Fisheries Association: 5. Mr Tran Van Dung, President 6. Mr Nguyen Van Cuong, Deputy President |
| | | Van Ninh Fisheries Association: 7. Mr Tran Kim Bao, President 8. Mr Dang Tri Thong, Secretary |

empowerment and sustainability (SEB) of small-scale fisheries associations. The workshops also identified opportunities for capacity building for small-scale fisheries associations in Khanh Hoa Province and recommended policies and actions for strengthening, empowering and sustaining these associations. Finally, policy-oriented (for Government) and action-oriented (for associations) recommendations were formulated, based on all results.

RESULTS AND DISCUSSION

The social and economic context of associations

Khanh Hoa is a coastal Province with 385 km of coastlines, plus another 135 km of coastline on surrounding islands. Khanh Hoa Province has high potential to develop aquaculture because it has many bays and lagoons, including Van Phong Bay, Cam Ranh Bay, Nha Trang Bay and Nha Phu, plus Thuy Trieu lagoons which has a surface area of 400 000 km². The total potential area for aquaculture is 7564 hectares (ha), out of which the farmed area is 5198 ha. Marine aquaculture covers an area of 2289 ha and the rest is pond aquaculture for brackish and marine water species (Khanh Hoa Fisheries Association, 2016). In 2015, total aquaculture production was 16 798 tonnes, comprising of 5 925 tonnes of whiteleg shrimp, 4 242 tonnes of finfish from cage farming, 2 973 tonnes of mollusk farming and 1 286 tonnes of seaweeds (dry weight) (Khanh Hoa Fisheries Department, 2016). Besides the main species, Khanh Hoa Province now is developing a number of high value species including lobster, babylonia snail, seaweed and marine finfish such as grouper, sea bass and pompano (Khanh Hoa Department of agriculture and Rural Development, 2016). The hatchery business is also a large industry in Khanh Hoa Province, with 461 hatcheries that produced 2 691 million fingerlings in 2015.

To reiterate, the Fisheries Associations were established in major aquaculture areas to contribute to fisheries and aquaculture development. The associations also play their role in protecting legal rights of its members.

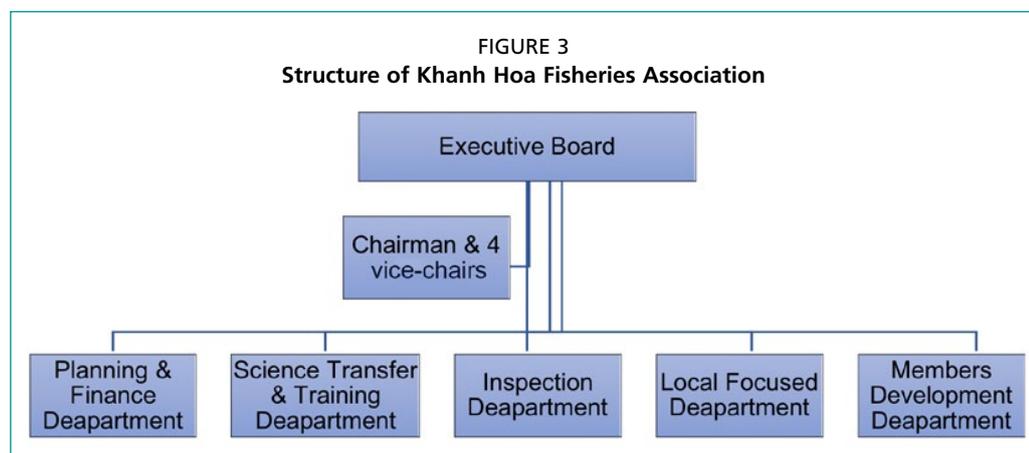
General information about Fishery Associations (FAs) in Khanh Hoa Province

Khanh Hoa Fisheries Association (KHAFa)

Khanh Hoa Fisheries Association (KHAFa) was established in 2001 by Khanh Hoa's Provincial People Committee. It is located at No. 85, 2/4 Street, Nha Trang City in Khanh Hoa Province. In 2016, KHAFa had 1,195 members and of these 178 were fish farmers, 453 were hatchery operators, 527 were capture fishers, and 13 are representatives of seafood processing plants. In organizational terms it has 26 executive members. The structure of KHAFa is illustrated in Figure 3. Members have land-based fish farms ranging between 0.5 and 2.0 ha, while the floating cages vary in size, including 4m x 4m x 4m deep for fish and 3m x 3m x 8m deep for lobster.

The five major roles and responsibilities² are to:

- 1) train, support and promote co-operation in science and technology;
- 2) protect legal rights of members;



² Further information about Khanh Hoa Fisheries Association can be found at their official website www.khafa.org.vn.

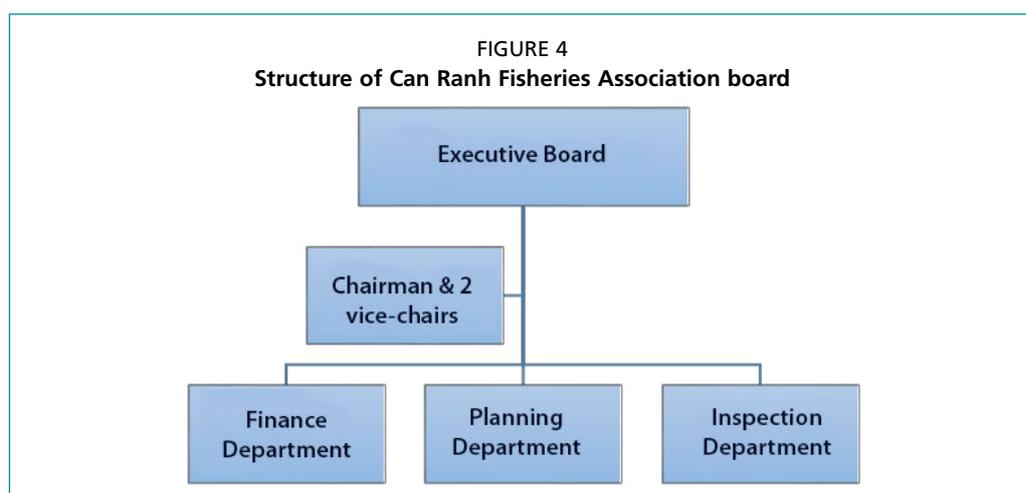
- 3) provide information on fisheries laws, regulations and relevant information to members;
- 4) provide recommendations to policy makers; and
- 5) contribute to the development of fisheries in Khanh Hoa province.

Cam Ranh Fisheries Association

Cam Ranh Fisheries Association was established in 1998 by the Cam Ranh City People Committee. With 275 Members presently, the main office is located at No 2 Pham Van Dong Str, Cam Phu Ward, Cam Ranh City, Khanh Hoa Province. The structure of Cam Ranh Fisheries Association is shown in Figure 4. The Executive Board of Cam Ranh FA has five members including the Chairman, two Vice-Chairs and two Members. Most of the important issues are decided by the Executive Board, based on a majority (3 of 5 agree).

The five primary responsibilities of Cam Ranh Fisheries Association are:

- 1) to act on behalf of all members in internal and external co-operations related to roles and responsibilities;
- 2) protect and defend legal rights of members;
- 3) transfer & train in new technologies and provide related information to members;
- 4) co-operate with stakeholders to implement relevant projects conducted in Cam Ranh City and provide scientific services to members; and
- 5) provide recommendations related to fisheries development in Cam Ranh City to policy makers and develop fisheries associations.



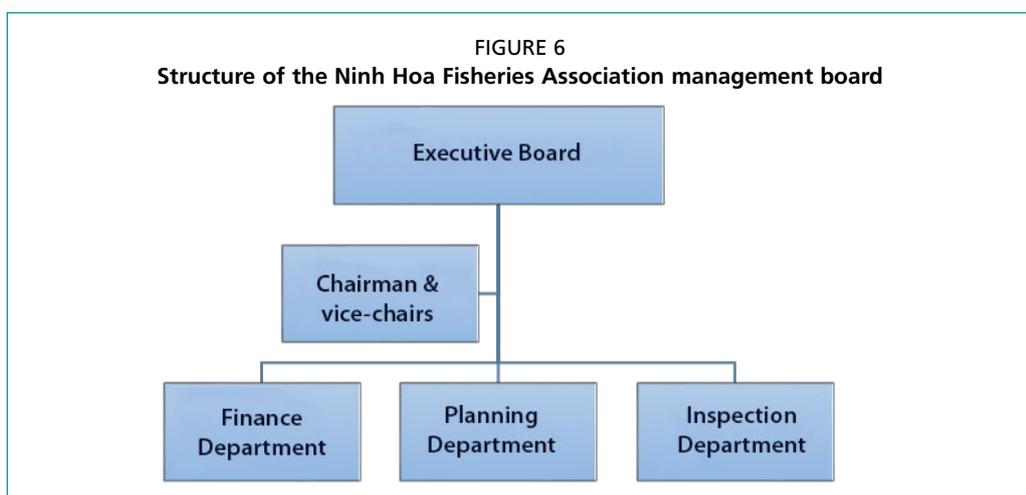
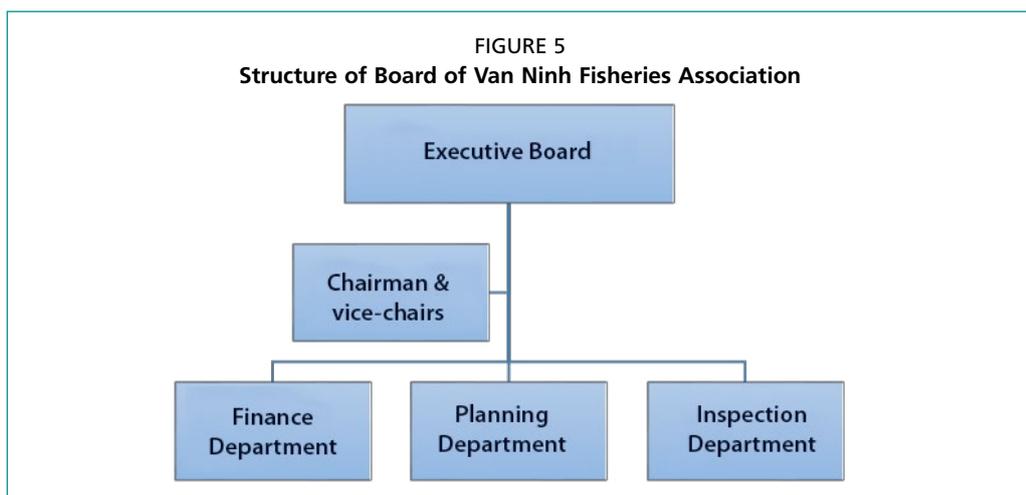
Van Ninh Fisheries Association

Van Ninh Fisheries Association was established in 2010 by The People Committee of Van Ninh District. Established at No.469 Hung Vuong Str, Van Gia Town, Van Ninh District, Khanh Hoa Province, it has 22 members. The management structure of Van Ninh Fisheries Association is shown in Figure 5.

Ninh Hoa Fisheries Association

Ninh Hoa Fisheries Association was established in 2012 by Ninh Hoa Town People Committee. It is located at No.999 Tran Quy Cap St, Ninh Hiep Ward, Ninh Hoa District, Khanh Hoa Province. The current membership is 39, and is led by a management board with the structure defined in Figure 6.

Within all the associations mentioned above, each has an annual general meeting to discuss issues and to make decisions in relation to the future management of the association (Plate 1).



The policy and institutional context of the association

Fisheries Associations are governed by Decree No.45/2010/ND-CP of 2010. Under the Decree, an association is organized by a group of volunteers and the government has the responsibility to support and guide it. Fisheries Associations are managed by the Provincial Department of Agriculture & Rural Development (DARD). In

Khanh Hoa Province, Fisheries Associations cooperate with scientific technological institutions such as Research Institute for Aquaculture No.3 (RIA3), Institute of Oceanography (IO), Nha Trang University (NTU), and others. In addition, fisheries associations have good relationship with other related associations including those of fish sauce manufacturers, tuna fishers and set-net fishers.

To promote aquaculture products, farmers, middlemen, feed suppliers, local buyers and fish processing companies are welcome to make a production chain. This builds a better relationship between stakeholders and promotes exchange of information, knowledge and experiences on aquaculture products & businesses.

THE ATTRIBUTES OF THE ASSOCIATIONS

SWOT Analysis

SWOT analysis results are presented in Table 1.

TABLE 1
Viet Nam SWOT analysis results

| Strengths | Weakness |
|---|--|
| <ul style="list-style-type: none"> - High potential to develop aquaculture, especially hatcheries - Multi-participation from stakeholders - Large number of members - Strong regional & international co-operations - High economic fish species | <ul style="list-style-type: none"> - Lack of sustainable financial resources - Lack of infrastructure (permanent office) - Lack of professional staff - Poor linkages between associations with farmers, buyers and researchers and other Institutions. - Many inactive Members - Functions as a "Semi-Government" organization instead of as an NGO |
| Opportunities | Threats |
| <ul style="list-style-type: none"> - Support and guidance from Government - Roles & responsibilities of FAs are set out in Fisheries Laws in 2003 and approved in 2008 - Khanh Hoa Province is planning to become a Hatchery Center for South Central region - International co-operation with aquaculture Organizations - Free Trade Agreements (FTAs) - Develop eco-products and branding | <ul style="list-style-type: none"> - Diseases - Natural calamities (global warming and climate change, etc.) - High requirements from international markets on aquaculture products - Polluted water environment |

Strengths

High potential to develop aquaculture, especially hatcheries. Khanh Hoa is a coastal Province where a good climate and a favorable environment offer a high potential to develop cage and pond aquaculture, as well as hatcheries. Khanh Hoa Province is a leading fish seed producer of marine species including grouper, pompano, Asian seabass, cobia, black tiger shrimp, whiteleg shrimp, mud crab, green mussel, abalone, Pacific oyster, Babylonia snail, and others.

Multi-participation from stakeholders. As voluntary organizations, fisheries associations include many stakeholders such as fish farmers, local scientists, researchers, and fisheries managers. Recently, stakeholders from industries, particularly processing, exporting and fish-meal companies, became interested in this activity. Traceability of seafood products has become more important, that requires a close linkage between the various actors along the seafood market chain and associations are seen as one way in which this close linkage can be developed.

A large number of Members. All aquaculture farmers within a District become members of a fisheries association, once they get an approval letter from the commune's association. Thus, there are hundreds of members for each association in a District. Besides producers, the fisheries associations also have participation from

other stakeholders such as Research Institutes, Universities, fisheries extension office, processing companies, and feed suppliers.

Strong regional and international co-operation. Besides its natural advantages, there are many leading fishery research institutions located in Nha Trang City, including the Research Institute for Aquaculture No.3, Nha Trang University, and the Institute of Oceanography. Thus, fisheries associations have a close co-operation with these Institutions. In addition, Khanh Hoa Fisheries Association collaborates with the Aquaculture Department of South East Asia Fisheries Development Centre (SEAFDEC/AQD) in the Philippines, Japanese Trust Fund (JTFs), and Japan International Cooperation Agency (JICA).

High-value species. There are many high value species farmed in Khanh Hoa Province such as black tiger shrimp, whiteleg shrimp, lobster, cobia, mud crab, grouper, pompano, Babylonia snail, and so on.

Weaknesses

Lack of sustainable financial sources. Most of the small-scale aquaculture association in Khanh Hoa Province do not have sustainable financial sources. There is no regularly allocated fund for their activities. The budget is partly supported by the local People Committee for some activities, and the rest are from other sources, although mostly from local projects.

Lack of infrastructure. Due to lack of finance sources, facilities of the fishery associations in Khanh Hoa are poor. Only Khanh Hoa Fisheries Association, as the top organization, has a permanent office and a few basic office equipment, while the Cam Ranh, Ninh Hoa and Van Ninh associations have no office building. These associations must rent, share or set up a temporary office in the People Committee's building.

Lack of professional staff. FAs in Khanh Hoa Province do not have sufficient professional staff. Most of the staff working for FAs are retired or concurrently working in other agencies. This is partly due to the limited funding resources, where associations do not have enough of a budget to hire skilled staff or engage experts.

Poor linkages of associations with other bodies. One of the main roles of associations is to provide information to members, but gaining information is difficult given associations have not developed connections with relevant stakeholders to be able to enact their role as a "bridge" to members. The linkages between associations and other stakeholders are weak or non-existent. They have not created interesting activities to attract the participation of members and other stakeholders.

Many inactive members. Even though they have many members, the number of active members are few. Often members register because they must, then do nothing, to the extent that many do not participate in any meeting. This is partly a result of the heterogeneous membership, where it is not so easy to develop a strategy, or to develop projects that are relevant to all four types of members i.e. fisher, fish farmer, hatchery operator and processor.

Functions as "Semi-Government" organizations instead of as NGOs. Fisheries associations must be Non-Government Organizations (NGOs). However, fisheries associations in Khanh Hoa Province are operating as a "Semi-Government" organization because they are partially funded by Government and they are implementing activities passively. One reason is that most of their staff are retired or concurrently working

from local Government offices. These concurrent working officers do not have much time for the association and retired officers may not be in the best of health.

Opportunities

Support and guidance of Government. Presently fisheries associations in Khanh Hoa Province continue to receive a minor fund from Provincial People's Committee or District People's Committee for their annual Meetings and some facilities (including office rent and equipment). The support is very important to them, especially to associations at District level. In addition, fisheries associations have also been receiving technical support and policy guide from Directorate of Fisheries (D-FISH) under The Ministry of Agriculture and Rural Development, including for training in advanced technologies or on new relevant regulations.

Roles & Responsibilities of FAs are clarified in Revised Fisheries Law of 2008. The Fisheries Law was issued in 2003, but roles and responsibilities of FAs were not included in the Law until 2008. Before that, all of FAs in Viet Nam were working under Decree number 45/2010/ND-CP, instead of Revised Fisheries Laws.

Khanh Hoa Province is planning to become a Hatchery Centre of South Central region of Viet Nam. Khanh Hoa Province is planning to become a Hatchery Centre for the South-Central region of Viet Nam. With this planning from the Directorate of Fisheries, hatcheries along Khanh Hoa coast will be re-arranged and investment will be made to bring these up to modern standards. This is a good opportunity for association's members to improve their hatcheries, in order to provide high quality fingerlings to market.

International co-operations on aquaculture. Besides internal opportunities, international cooperation is also a good opportunity for aquaculture via fisheries associations in Khanh Hoa Province. As mentioned above, fish farmers have advantages of international collaborations from Research Institutions located in Nha Trang City. This is a great opportunity for fish farmers and associations, to gain access to new technologies from training courses, workshops or farming models.

Free Trade Agreements (FTAs). As Viet Nam has negotiated and signed many FTAs, these are opportunities for small-scale farming associations, but also represent a challenge to fisheries associations. The opportunities to association members is the access that FTAs give to international markets, and Viet Nam's seafood can be delivered to many countries with the competitive advantage of trading free of importation taxes. However, there is also a requirement to adopt many global product standards, that are different and harder than local standards, which represents a challenge to the associations in having to comply with these standards.

Development of and trade in eco-products and branding. Members of fisheries associations in Khanh Hoa Province have been developing eco-products and their branding. One of the recognized products is the sea grapes seaweed. Members now are developing sea grapes products including fresh and salted sea-grapes, which are a high value-added product for export to Japan, Korea, the United States of America and Taiwan Province of China.

Threats

Diseases on aquaculture species. In recent years, many disease outbreaks affecting aquaculture species have occurred, due to polluted water. These include:

- diseases of cultured lobsters including "white milk", red body and black gills;

- diseases of shrimps including white spot syndrome, Taura syndrome, infectious hypodermal, haematopoietic necrosis, baculoviral midgut gland necrosis and vibrio infections;
- diseases of Babylonia snail caused by various organisms such as *Vibrio alginolyticus*, *V. fluvialis*, *V. vulnificus*, *V. parahaemolyticus*, *Vibrio* spp, *Zoothamnium* spp.; and
- diseases of finfishes caused by bacterial, fungal and parasitic agents.

Natural calamities. Located in South Central of Viet Nam, Khanh Hoa Province is exposed to tropical monsoons that bring heavy rains and storms. Aquaculture in Khanh Hoa Province is vulnerable to natural calamities, including strong rains that reduce salinity in ponds or nearshore seawater.

High requirements from international markets on aquaculture products. As Viet Nam has been integrated globally, aquaculture products are exported to many countries. Whole supply chains and stakeholders must comply with international requirements, including standards on production and quality. Aquaculture products in Khanh Hoa Province are beginning to follow some international standards, such as global GAP (Good Agriculture Practice) and Best Aquaculture Practices (BAP). Processing companies are increasing using Hazard Analysis and Critical Control Points (HACCP), British Retail Consortium (BRC) standards, and following procedures to gain HALAL certification. To support members, association staff must clearly understand these requirements, but this is a challenge because of, among others, inadequate proficiency in the language in which the standards are written.

Strength, Empowerment and Sustainability (SES) analysis

Strong

Small-scale fisheries associations in Khanh Hoa Province were officially established by People's Committees. These associations are governed by Decree No.45/ND-CP/2010. With many members, even though many are not active, each association has a wide base of membership, which can be considered as a strong factor of associations. All associations have an executive Board that meet regularly (quarterly and annually). The Executive Board is elected every five-year period by a General Meeting, which is provided for in the association's charter.

Empowered

All associations in Khanh Hoa Province were established by People Committees at different levels. Most of these associations are housed in Governmental Offices and working closely with Government fisheries agencies (such as Aquaculture Departments or Agriculture Departments). Thus, their representatives are invited to participate in most of events (including meetings, training and workshops). Besides supporting members, a very good relationship with Research Institutes has been developed including with RIA3, NTU and IO. Some sectorial forums are organized to connect stakeholders, such as fish-feed providers, fishers and processors, and there are open dialogues between Government Officers, scientists, and Aquaculture owners in which meetings are convened to agree on "best solutions" to the issues related to the aquaculture development in the Province.

Sustainable

Sustainability is a critical issue for associations in Khanh Hoa Province. Most of the associations were established quite early in aquaculture full development within Viet Nam, but activities are always awaiting support from Government, which means progress has been slow. The short-term, and long-term, plans are rather general, and

in some case the plans have no details and are not clear. Normally, an associations five-year plan is approved in the general meeting, but this plan is very general and must be revised every year in the annual meetings in order to stay relevant.

The most serious issue mentioned is the funding available for an associations activity. Most associations do not have sustainable financial sources. Generally, there is only a small amount coming from member fees, and then only from a few members, plus other small funds from a few projects are available for certain activities. These funds are not sufficient to fully support the association's annual action plans.

CONCLUSIONS

Khanh Hoa Province has natural advantages to develop aquaculture for high value species, and which also favors the hatchery sector. Some associations were established very early in the development of aquaculture, approximately 19 years ago, and with a big number of members. However, these associations have not operated actively and effectively due to a lack of financial sources, professional staff and infrastructure. Due to the lack of activities, the linkages between stakeholders in the whole production-supply chain are weak. Overall, associations in Khanh Hoa Province have good opportunities for growth but have to overcome their weaknesses and address the threats.

RECOMMENDATIONS

Policy-oriented recommendations aimed at SES - addressed to Government

The following policy-oriented recommendations are suggested to strengthen, empower and sustain FAs in Viet Nam:

- 1) The roles and responsibilities of Associations under the revised Fisheries Law need to be updated, revised to meet the requirements of international product and process standards.
- 2) Decree No. 45/2010/ND-CP is very general for all kinds of associations including political associations such as Youth Union, Women Association, Agricultural associations, and the industry would benefit from a clear definition and mechanism for the Fisheries associations, and the fisheries sector in general.
- 3) A sustainable financial source is crucial to small-scale associations in Viet Nam and in Khanh Hoa Province, specifically. Thus, a financial mechanism should be developed for associations to have a regular and sufficient budget for their activities. This would enable associations to work actively and be up-to-date in the requirements of international markets.
- 4) To expand the development opportunities of fisheries associations, participation from other subsectors such as processing, exporting companies, wholesalers, retailers, and so on is needed. Thus, future policies need to create advantages (such as credit and tax incentives) to encourage industries and other stakeholders to participate actively in associations' activities.
- 5) Fisheries include many sectors such as capture fisheries, aquaculture, processing, seafood exporting, and so on. Therefore, establishment of specific aquaculture associations, based around a commodity or species could be useful to promote the linkages between stakeholders and actors in the production-supply chain. For instance, at national level, the Viet Nam Tuna Association (Vinatuna), Viet Nam Pangasius Association (VPA) and Viet Nam Association of Seafood Exporters & Producers (VASEP) are good examples of associations that are specific for one species or one sector. In Nha Trang at provincial level, there is a need for similar specific associations to be established such as: Lobster Association, Seaweed Association, Babylonia Snail Association, and so on. These associations could work very closely with farmers and address the specific challenges and

opportunities of this sector and derive activities that are specific to them. At the moment, the fisheries associations are a big group covering every fisheries activity, with huge membership and diverse needs that makes the association unsustainable.

Action-oriented recommendations – aimed at SES - addressed to fisheries associations

The following actions are needed to strengthen, empower and sustain fisheries associations in Khanh Hoa Province:

- 1) Building human capacity: To increase their capabilities, fisheries associations in Khanh Hoa Province need to improve the staff's capacity, both in terms of quantity and quality of personnel. Retired, concurrently working staff together with the farmers need to be trained and improve their skills and knowledge. This is a sustainable way to help associations work actively and successfully.
- 2) Finding sustainable financial sources: The second most important resource of an association is arguably its funding. A regular budget is critical for holding essential activities. Membership fees are small and not being fully contributed from members. It is insufficient to cover every activity in an association's plan. Applying for or generating other funding sources, to increase budget for FAs, should be considered. Moreover, a demonstration of good model farming using advanced technologies should be implemented and expanded among the aquaculture communities. This will help to strengthen individual members and serve to create a sustainable budget for the association.
- 3) Improving the infrastructure: Three of the four associations in Khanh Hoa Province do not have their own office. They must share or rent the offices with other Departments within the People's Committee building. Their equipment is also inadequate for efficient operation; they lack the basic equipment for office operations including printers, photocopiers, fax, computers and so on. Thus, it is necessary to provide the essential equipment for these associations to improve the working environment and operational efficiency.
- 4) Building short-term and long-term action-plans to attract participation from members: Even though fisheries associations have a large number of members, most are farmers of one sort or another. Participation in common activities is very limited, due to (i) association activities are not attractive to members, while the farmers have to contribute their fee to help to run the associations; and (ii) the fisheries association activities are very simple and not much help farmers. As a result, most members are not active, and focus only on their private business and do not care about association's activities. To increase participation the action-plans should be developed, that are achievable, and have outcomes that will support a large number of the members, thus increasing their interest and participation.
- 5) Providing information on aquaculture and establish a linkage between executive officers and farmers: One of the main roles of associations is providing information to members. There is only one fisheries association that has a website. Thus, there is a necessary to build websites, and other communication channels to provide news, new regulations, and technologies to members, on subjects like disease identification and treatment, trading, marketing, and others. Technical magazines should also be addressed to associations.

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SECTION C

REPORT OF THE REGIONAL WORKSHOP

The report of the regional workshop on strengthening, empowering and sustaining associations of small-scale aquaculture farmers and hatchery operators in five Asian countries

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Hasan, M.R. & Bueno, P.B. 2020. The report of the regional workshop on strengthening, empowering and sustaining associations of small-scale aquaculture farmers and hatchery operators in five Asian countries. In M.R. Hasan, P.B. Bueno & R.A. Corner, eds. *Strengthening, empowering and sustaining of small-scale aquaculture farmers' associations*, pp. 149-173. FAO Fisheries and Aquaculture Technical Paper No. xxx. Rome, FAO. 190 pp.

ABSTRACT

The regional workshop on “Strengthening, empowering and sustaining associations of small-scale aquaculture farmers and hatchery operators in five Asian countries” validated the findings of the case studies from five countries in Central, South and Southeast Asia, namely, Bangladesh, Kyrgyz Republic, the Philippines, Sri Lanka, and Viet Nam. It drew up policy and action recommendations from those recommended by the case studies and from the workshop deliberations. It is the second major step of the project, which sought to identify the factors that contribute to strengthening, empowering and sustaining farmers’ associations. The participants included mostly primary stakeholders that have direct interactions with small farmers. The stakeholders represented in the workshop, apart from the case study authors from the five countries, Bangladesh Shrimp and Fish Foundation (BSFF) and FAO of the UN, included women and men farmers from Bangladesh, services providers including feed manufacturers, shrimp seed suppliers, fish hatchery operators, institutional lenders, developers of information technology applications, certification and marketing experts, processors and exporters, government fishery and trade agencies, non-government organizations, and regional and international organizations. The workshop discussed the recommendations, which consisted of the context-specific and the generic. Recommendations from the case studies included the opportunities for facilitating the organization of farmers’ associations, capacity building of the associations that include two major areas, namely, professionalizing the associations’ procedures, leaders and members and continuous technical capacity

improvement of members, incentives and other policies for strengthening, empowering and sustaining associations. The workshop recommended the production of a practical guide on organizing, strengthening, empowering and sustaining a farmers' association, particularly addressed at one whose membership comprises the small-scale farmers. Also given serious attention are the pitfalls that can undermine the success of an association. The workshop urged FAO to incorporate the relevant findings in its better management practice guidelines for the aquaculture sector of developing countries.

INTRODUCTION

The workshop essentially validated the recommendations of the case studies, which were of different types of farmer associations: Bangladesh (hatchery operators in a district), Kyrgyzstan (national trout farmers association), the Philippines (a village-based association of women milkfish farmers and processors), Sri Lanka (district ornamental fish farmers) and Viet Nam (a provincial fisheries association with fish farmers among its members). The summary of the presentations of the case studies and the discussion appears as Annex 1. Apart from FAO and the country case study authors, the 40 participants represented most of the primary stakeholders that have direct interactions with fish farmers i.e., men and women farmers that are members of farm clusters in Bangladesh, feed manufacturers, shrimp seed suppliers, fish hatchery operators, institutional lenders, information technology developers, certification and marketing experts, government fishery and trade agencies, non-government organizations, regional and international organizations, donor organizations, international development banks (Asian Development Bank and World Bank), academia, and the Bangladesh Shrimp and Fish Foundation (BSFF). BSFF organized the workshop in collaboration with FAO Bangladesh and FAO's Aquaculture Branch of the Department of Fisheries and Aquaculture, Rome. The workshop participants are listed in Annex 2.

A special event was organized on the eve of the workshop, on 20 May. The newly launched BSFF initiative on e-traceability applied to shrimp aquaculture was presented to a small group of selected experts that included the case study authors and FAO officers and consultants, who were invited to provide comments and suggestions on the IT component of the e-traceability system being piloted on eight clusters of shrimp farmers (a cluster usually has 25 members). The subject was presented by Mr. Tariqul Islam Chowdhury, IT expert and consultant to BSFF. The eight clusters have an aggregate farm area of around 450 hectares. They are in Debhata under Satkhira District. They were organized and are being provided technical advice by BSFF and the government's local offices. A cautionary comment was to avoid overloading the system (the most important component of which are people) with too much data requirement. It was suggested to train the farmers in using the system particularly in record keeping and data input. It was agreed that an e-traceability scheme could empower the small shrimp farmers, who are organized into clusters, because it endows them with a better transaction power with the buyers. It also improves the farmers' capacity to plan and manage their farms and manage production and marketing risks. At the same time it provides the government and other institutional and industry service providers up-to-date and reliable data of each farm. The list of participants to this special session appears as Annex 3.

Rationale of the project

Small-scale operations predominate Asian aquaculture. Their size and low level of resources tend to limit their opportunities in so many ways, which can be overcome by being associated. The benefits to small- as well as large-scale farmers of being

associated are numerous, which can be summed up in terms of having the economy of scale that enables them to economically and easily access and effectively manage production and marketing assets.

OBJECTIVES. The objectives of the project were to:

- a. Assess strengths, weaknesses, opportunities and threats to associations (SWOT analysis).
- b. Identify, describe and explain key factors that constrain the strengthening, empowerment and sustainability of farmers' associations.
- c. Identify opportunities for capacity building of farmers' associations.
- d. Recommend policy options for empowering and sustaining farmers' associations.

The basic purpose of the workshop was to validate the results and recommend to FAO follow-up activities.

Relevance to FAO's objectives

The project supports FAO's strategic objective of reducing rural poverty and is relevant to the objective's Outcome 1 *"The enabling environment is improved for the rural poor towards enhanced and equitable access to productive resources, services, organizations and markets, and to ensure they are effective"* and Output 1.1, *"Governments and relevant stakeholders are supported to strengthen formal and informal rural institutions, organizations and services and facilitate peoples' empowerment to actively participate in decision making processes and contribute to the improvement of rural livelihoods and the reduction of poverty"*.

WORKSHOP ARRANGEMENTS AND METHODOLOGY

The workshop was held from 09:00 to 18:00 hours on 21 May 2017 at the Amari Hotel in Dhaka. Sessions were conducted in plenary. The Chairman was designated by the organizers, BSSF and FAO, with the agreement of the participants.

The programme followed this sequence of activities: (i) the background and purpose of the workshop were explained by BSSF; (ii) the rationale, objectives and outputs of the project were presented by FAO; (iii) the case study authors presented in PowerPoint mode the results of the case studies; (iv) the synthesis of the case studies was presented by FAO and BSFF; (v) the Session Chairman gave his comments and noted the important issues addressed by each case study and that of the case study synthesis (vi) short narratives of relevant experiences with small farmers or small farmer organizations were given by the representatives of the other stakeholders; (vii) the discussants provided their comments as well as raised questions and proposed recommendations; and (viii) the Chairman of the session wrapped up the workshop with a summary of the highlights of the case studies and the recommendations arising from the cases and those generated by the discussions.

WORKSHOP PROCEEDINGS

Opening Session

a. Welcome Remarks, BSFF. Mr Syed Mahmudul Huq, Chairman of the Bangladesh Shrimp and Fish Foundation (BSFF), opened the workshop and welcomed the participants. He noted the importance of the project to the efforts of developing countries such as Bangladesh in improving the capabilities of small-scale farmers so that they become a stronger partner in development. BSFF has long been involved in numerous advocacies and projects - in partnership with government, farmer organizations, industry service providers, science and technology institutions, and other regional and international organizations - to strengthen and develop a socially responsible aquaculture sector. BSFF appreciates the opportunity to collaborate

with FAO in organizing the regional workshop. He explained briefly the workshop programme and enjoined the participants to freely contribute to the deliberations. He acknowledged the various agencies, organizations and groups for their cooperation and welcomed the case study writers from the countries.

b. Introduction to the Project. Dr Mohammad R. Hasan, Aquaculture Officer, Department of Aquaculture and Fisheries, FAO Rome, explained the objectives of the project. It supports FAO's third strategic objective or SO3, which is to reduce rural poverty, and in line with the objective's outcome of an improved enabling environment that enhances the rural poor's equitable access to productive resources, services, organizations and markets, and to ensure they are effective. It would contribute to the SO3's output, which is the provision of support to governments and relevant stakeholders to strengthen formal and informal rural institutions, organizations and services and to facilitate peoples' empowerment to actively participate in decision making processes and contribute to the improvement of rural livelihoods and reduction of poverty.

The case studies aimed to assess the strengths, weaknesses, opportunities of and threats to the (case) associations; identify, describe and explain key factors that constrain the strengthening, empowerment and sustainability of farmers' associations; identify opportunities for capacity building of farmers' associations; and recommend policy options for empowering and sustaining farmers' associations. The expected outputs of the study, of which this regional workshop is the second step, are the identification of key internal and external factors to be addressed in order to strengthen, empower and sustain farmers' associations; policy-oriented recommendations for strengthening, empowering and sustaining farmers' associations; and action-oriented recommendations addressed to fish farmers' associations and to other primary stakeholders such as government, Research and Development, and other institutional service providers to farmers.

The outputs of the project will be incorporated in better management practice (BMPs) guides for small-scale aquafarmers and hatchery operators to be developed by FAO.

Dr Hasan thanked BSFF for organizing the workshop and FAO Bangladesh for helping to facilitate the process of preparing the activity. He also appreciated BSFF for organizing a study tour for the case study authors from the Philippines and Sri Lanka to the aquaculture-rich southwest region. He welcomed and thanked the participants for their time and contribution to the workshop.

c. Remarks from FAO Bangladesh. Ms Begum Nurun Naher, National Operations Officer, spoke on behalf of the FAO Representative, Ms Sue Lautze. She thanked the leadership and staff of BSFF for the efficient organization of the workshop. She appreciated the participation of the various stakeholders of the aquaculture industry and particularly cited the enhanced role that the farmers and hatchery operators can play in aquaculture development, food security and poverty reduction if they were organized or if their associations were further strengthened. In this regard, she thought an apex organization such as the newly formed Bangladesh Fish Hatchery and Culture Association is needed to unify and represent the interests of the fish farmers and hatchery operators in national development policy and programme planning.

d. Remarks from the Department of Fisheries. Mr Sheikh Mustafizur Rahman, Additional Director General of DoF recognized the importance of the fish farmers and hatchery owners in being strongly organized, empowered and sustainable to accelerate the development of the country's aquaculture sector. He said that aquaculture has seen a rapid growth in the country - citing the recent statistics to illustrate the encouraging

trends - and has become an important contributor to food and livelihood security in the rural areas and revenue to the country. He thanked FAO and BSFF for this timely workshop and the national and international delegates for their participation.

f. Introduction to the workshop. The workshop chairman, Mr Liaquat Ali Choudhury, Policy Adviser to BSFF, welcomed the participants, described the workshop goals and objectives, reviewed the procedure and enumerated the expected outputs of the workshop. He opened the technical session.

Technical Session: Presentation of the Case Studies.

The case study authors, who were commissioned by FAO as national consultants, had earlier submitted to FAO and BSFF the drafts of their case reports. The contents include (i) a description of the subject of the case study, (ii) the socio-economic and policy contexts, (iii) the result of the SWOT analysis, (iv) the factors associated with the observed status of strength, empowerment and sustainability of the case, (v) lessons learnt and (vi) recommendations from the case study. Their presentations, in PowerPoint, followed the same structure. The sequence of presentation was Bangladesh, a supplementary presentation from BSFF (on the prospects of and support for farmers' organizations/clusters for sustainable aquaculture in Bangladesh), Kyrgyz Republic, the Philippines, Sri Lanka and Viet Nam. These were followed by the presentation of the synthesis of the case study reports by Mr Pedro B. Bueno, International Resource Person, Bangkok, Thailand and Dr Mohammad R. Hasan, FAO, Rome, Italy.

The PowerPoint presentations of the country case studies and the synthesis of five case studies as presented in the workshop can be accessed on request.

This report highlights only the essential characteristics of the cases, the factors associated with their observed strength, empowerment and sustainability and the recommendations.

a. Bangladesh. Jessore District Hatchery Owners Association. Dr Mostafa A.R. Hossain, Professor of the Department of Fisheries Biology and Genetics and Dr A.H.M. Saiful Islam, Associate Professor of the Department of Agricultural Economics of Bangladesh Agricultural University worked on the case study. Dr Hossain presented the case.

Aquaculture in Bangladesh, now the world's fifth largest producer, is predominantly operated by small-scale fish farmers. There are 14.7 million fish/shrimp farmers, 3.0 million farms and over 1 000 fish hatcheries in the country. In 2015, some 2.06 million tonnes of fish were produced in farms and about 547.55 tonnes of fish spawns in the hatcheries. Bangladesh does not have a national level association to represent all the fish farmers and hatchery owners of the country. However, there are a number of formal, informal, local, regional and product-based associations such as the Jessore District Fish Hatchery Owners Association (JDFHOA), which is the featured case in this study, Shrimp Hatchery Association of Bangladesh (SHAB), Fish Farm Owners Association of Bangladesh (FOAB), Golda (giant freshwater prawn) Hatchery Association of Bangladesh (GHAB), Bangladesh Shrimp Farmers Association (BSFA), and Shrimp Fry Traders Association (SFTA). In addition, there are informal community-based organizations formed under Department of Fisheries projects. The shrimp farmers' clusters in the southwest under a collaborative project (by FAOBD, BSFF, WorldFish and DoF) are another example. Solidaridad's SaFaL Project has also organized 500 aquaculture producer groups with nearly 30 000 members into informal associations. These informal associations do not have legal stature but have a proper governance structure and are implementing some business plans to improve their productivity as well as livelihoods.

The Jessore District Fish Hatchery Owners Association (JDFHOA) was established in 2012 with the aim of making the hatchery owners of Jessore technically sound and economically stronger through successful and sustainable business entrepreneurship. It also sought to create solidarity and goodwill among the hatchery owners and assure the provision of comprehensive assistance to its members. JDFHOA has 21 members and an Executive Committee elected by direct vote of the members in the annual general meeting. It collects BDT5 000 annually from each member. The association has a savings of more than 1 million BDT (Bangladesh Taka), growing every year. It has a well-equipped office in Jessore Municipality. JDFHOA has been playing a vital role in the fish seed sector of the district and neighboring areas.

Its sources of strength include these factors: highly motivated members who take pride in being with the association; sharing a common interest and working together; a written constitution and by-laws to which the members abide; the well-developed technical skill and experience of members and an effective management; their desire to keep on improving their performance which is assessed during regular meetings and in annual general assembly during which necessary changes and plans are agreed. The overall result is that the Association has maintained a good reputation as a producer of quality seed. Fish farmers of Jessore and other districts believe that JDFHOA members do produce quality fish seed. They have achieved this by among others striving to acquire and maintain quality broodstock and exchanging these among themselves. Another indication of their good reputation is that farmers and fish hatchery operators purchase fish seed from the association members and seek their advice on better fish farming and hatchery techniques. Among the various benefits of being with the association that the members cite is being able to deal with output market and create a good brand for their product.

The factors associated with the association's empowerment include their ability to interact, negotiate, collaborate and work with other stakeholders; the linkage though only moderately strong, they have made with input providers and product buyers by which they are able to negotiate better price of inputs and products for members; their strong linkage with the mass media specially the TV channels; and their good linkage with the district office of the Department of Fisheries, the Bangladesh Fisheries Research Institute and the Jessore Science and Technology University. The association facilitates members' participation in training programmes and receiving technical support from government and national and international NGOs and assistance institutions

The sustainability factors include a democratic culture and goodwill among members; the ability to function at an effective level and maintain organizational viability; controlling internal factors like good management, employee morale, transparent and professional financial management; a sufficient resource base as members pay a regular fee; and a vital intangible capital - a reputable "brand" name. The association has a good amount of savings in bank and does not have to rely on subsidy to operate.

The weaknesses that stand out are their inability to have a significant impact on policy at the national level, poor linkage with credit institutions, and as yet weak linkages with other government agencies and some important NGOs and INGOs. They have poor negotiating power with providers of some important inputs. They admit to having very few women members and none in the executive committee.

Some important lessons from the case study are: (i) while local associations such as the JDFHOA are strong, their influence at the national level is insignificant so that there is need for a national level association; (ii) while the existing associations are doing well within their limited capacity, they still need a comprehensive set of assistance from different government, non-government and private organizations and research institutions to make their impact more visible; (iii) establishing a reputable "brand name" stems from a good product and the "after-sales" service that they render to their clients, goodwill and trust.

The action-oriented recommendations generated by the case study are:

- Associations should strive to attain three major objectives: seed and feed quality is maintained, supplied in time, of enough quantity and at a farm-gate price that is favorable to both producers and the buyers.
- Association should have a mechanism to provide updated market information and trends, for both inputs and outputs, to members through the social and mass media.
- Maintain very close linkage with the providers of inputs, credit and technology.
- Achieve the ability to bargain with product buyers from Bangladesh and from overseas to ensure a better price.

The policy recommendations are:

- In addition to product-based or local/regional associations, there should be a national level association with divisional, district and Upazilla chapters.
- The effort to strengthen and empower farmers associations should be in the agenda, the short-term and long-term policies of the Ministry of Fisheries and Livestock and other relevant ministries.
- The current procedure of registering an Association is complex and lengthy, and needs to be made more small farmer association-friendly i.e. clear, not cumbersome and fast.
- Association should be allowed to send representatives in departmental and ministry level meetings, planning workshops of the DoF, BFRI and universities.
- For their part, these institutions should tailor their R and D programmes in line with needs identified by the small-scale fish farmers/hatchery owners' associations.

The case report also offers an analysis of the factors that contribute to the success or failure of a farmers' association.

The case study authors have also provided suggestions to facilitate the registration procedure of farmers' organizations in Bangladesh. Their criticism is that the current one is cumbersome, difficult to comprehend, and lengthy. They recommend a one-stop system which, in general and in brief, works this way: applicant submits the application to a single authority which then works out the rest of the procedures with the different agencies.

b. BSFF. Shrimp Farmer Clusters. Mr Hiranmoy Bhattacharjee, Senior Aquaculture Value Chain Specialist, BSFF.

BSFF is supporting the formation of FOs primarily through a clustering approach based on the following assumptions:

- Cluster approach helps establish backward and forward linkages with all stakeholders in the value chain that will help the small farmers;
- Cluster approach will help disseminate information on GAP, BMP and practical and effective way of communicating information on risk management;
- Cluster approach will help small farmers to more easily address the social and financial risks associated with small-scale shrimp farming and increase their access to credit and other inputs as well as output markets;
- Cluster approach may help small farmers to develop and improve business plans and organize them in such a way as to develop a credible traceability system;
- Farmers organized in clusters may improve the marketing of products of small farmers by establishing direct links with processors and shortening the value chain;
- Limited access to credit of small farmers is a major problem because of the lack of the required collateral. BSFF is encouraging financial institutions to extend credit to cluster-based farms without collateral and lower the rate of interest if these four conditions are met: membership in a clusters, arrangements with quality input suppliers, record keeping for traceability, and forward linkage with processors.

The progress to date of the DoF-BSFF clusters and the Farmer Organizations under the FAO-Standard Trade Development Facility (STDF) project are:

- Developed 40 cluster farms, (25 members each) under the FAO-STDF programme in 2014-2015 involving 1 000 small-scale farmers in the greater Khulna region; trained them on group-based shrimp farming and implementation of Good Aquaculture Practices and Better Management Practices.
- Shrimp yields increased by 48 percent in the first year and 72 percent in the second year.
- Four interventions rendered - increasing the water depth, supply of SPF (specific pathogen free) shrimp, nursing of PL and hands-on training and capacity building of farmers - had helped increase the yields of the cluster farms;
- BSFF is trying to scale up the good practices learned from the piloting of the STDF project and clusters under the ATC-Project.
- The Foundation is working with DoF on a pilot project to develop a credible traceability system based on the clusters.

In addition the Foundation has signed MoUs with the Bangladesh Commerce Bank (BCB) to facilitate extension of credit to small farmers adopting a cluster based approach; making available disease-free PLs in the country with its collaborative arrangement with a private firm, the MKA-SPF Shrimp Hatchery under an MoU with MOANA Marine Biotech of Hawaii, United States of America with the support of DoF; and support to the activities of the following organizations: Bangladesh Frozen Foods Exporters Association, Bangladesh Aquaculture Alliance, Shrimp Hatchery Association of Bangladesh, Golda Hatchery Association of Bangladesh, and the Feed Industries Association of Bangladesh.

Comments from the Chair: The highlighted lessons from the two presentations are the association's success in fostering goodwill among and common interest of members, transparency and accountability, and reputation from an excellent product and service. It was also noted that the informal associations could provide the same advantages and benefits to small farmers as shown by the clusters, which usually operate outside the purview and control of government. The technical assistance from BSFF, DoF, FAO and other stakeholders shows that these informal associations can be very effective in furthering the interests of small farmers and contributing to rural development.

c. Kyrgyz Republic. National Trout Farmers Association. Mr Oleg Dosaev, Director, LLC Aqua Service and trout farmer and Dr Thomas A. Shipton, International Consultant and Project Leader of the FAO Government Cooperative Project (GCP) "Towards Sustainable Aquaculture and Fisheries Development in the Kyrgyz Republic" GCP/KYR/012/FIN worked on the case study. Mr Dosaev made the PPT presentation.

Founded in 2008, the Kyrgyz Republic Trout Farmers Association has 34 members, all trout farmers, based in Chui, Issyk-Kul and Jalal-abad. It had a focused objective: lobby government to provide a more enabling environment for sector development. It has succeeded in obtaining government recognition of aquaculture as an agricultural activity and thus, as with agriculture, entitled to tax exemptions on imported inputs (feed and seed) and a waiver on domestic taxes particularly the value added tax (VAT). The formal relation with government includes responsibility for providing production data and working on the development of policy and programmes for the development of, not only the trout industry, but the entire aquaculture sector. The association has organized technical training courses, so far 10 training seminars conducted by invited experts some of them from other countries, and technology transfer activities on feed and feed management, health management, and grow-out culture. Up to date information on the market for trout is provided to members. The association encourages exchange of experiences -e.g. problems encountered, and solutions tried, as well as potential problems

and possible solutions – among members. The association meets once a month and cooperation among members has become closer.

The socio-economic context of the association, and of Kyrgyz aquaculture, is defined largely by a political event. The dissolution of the former Soviet Union in 1991 and hence independence of the various Soviet states also resulted in the dramatic reduction in aquaculture and fisheries production from chiefly, loss of technical expertise, loss or closure of input suppliers (feed and seed), the difficult adjustment from a state-led to a market economy and the unsuccessful privatisation of state infrastructure (fish farms, hatcheries, feed mills), decline in governance mechanism, reduction in finance and investment into the sector and the influx of cheap imported fishery products. In 2009 total production from fish farms was 200 tonnes. The country has a low demand for fish: per capita annual consumption is 1.2 kg. Nonetheless, there has been a marked acceleration in growth in recent years; 2016 saw the output of farmed fish reach 2 020 tonnes.

The Department of Pastures, Livestock and Fisheries (DPLF) of the Ministry of Agriculture, Food Industries and Melioration (MAFIM) is tasked with leading aquaculture development. Several other agencies have a role in the industry: the State Agency for the Environment and Forestry for technical inspection, the National Academy of Sciences for basic and applied research, the Ministry of the Environment and Emergency Situations for biodiversity protection, water and other natural resources use and allocation, the Ministry of Economics and Finance on taxation, and the Ministry of Health on food safety

The association's strength owes much from the current surge in interest on starting fish farming operations, the excellent biophysical environment for trout culture, government support to the development of associations and collectives, a number of significant existing infrastructure that can be used to support sector development, low labor cost, and a developing export market in the Eurasian Economic Union.

The sources of weakness are likewise of internal nature and external influences. These are the low technical base among association members, the scarcity of specialists in the country, high cost of imported inputs especially feed and seed, a lack of support industries, low domestic demand for fish products, poor coordination between Government agencies and the various associations (there are nine other smaller ones formed with FAO assistance), the lack of material support from Government agencies, an uncertain legislative environment because of ambiguous legislation, and the high investment costs and limited access to capital.

On the attributes of the Association, it is considered strong because of these factors: its dedicated leadership (the association was initiated by a nationally recognized person with one of the most successful aquaculture businesses in the country) and the key officers are elected but work on a voluntary basis receiving no salary; it has a clear and very focused goal i.e. to obtain due government recognition.

The indications of empowerment are the fact that it has made aquaculture formally recognized by government agencies as an agricultural activity such that imported inputs including feed and seed are exempt from importation taxes; its ability to invite international experts to help with the training activities it organizes for members and to conduct technology transfer initiatives, and its ability to promote the adoption of good management practices to members.

It has attained a fair level of sustainability with government's formal recognition of it as a Producers Association, which has abetted the interest and continuing participation of key members. The financial status is not stable however because it relies on financial support for its activities from only one or two members.

The key lesson from the case study pertains to leadership succession and broader participation in its management. The lessons include:

- Success relies on the efforts of a few number of motivated individuals but might not assure sustainability.

- To advance the association there is a need to grow to include other commodity industry producers e.g. carp and sturgeon farmers.
- Enhanced sustainability needs finance; a mechanism for collection of membership fees and other obligations should be developed.
- The Association leadership needs to become a remunerated position and rotated as it is now voluntary but managing the association takes up a lot of time and attention.
- The good relations between government agencies and the association needs to be well managed and based on trust.

The recommendations include the development of a mechanism for setting and collecting a membership fee and other obligations; expanding the scope of the Association to include other production sectors for a more inclusive representation of the entire aquaculture sector, which could take the form of a National Producers Association; working out a remuneration scheme for key office bearers; promotion of the aquaculture market and particularly fish consumption; and maintaining the relation with government to, in particular, ease the various market restrictions that serve as disincentives to expansion of investment in aquaculture.

Comments from the Chair: This presentation is different in some ways from earlier presentations because of the political and socio-economic contexts. It is a product-based association based on trust and held together by a strong leadership but nevertheless must assure its financial stability by collecting membership fee from all members so that it need not depend on a few members or from the government for support. The recommendation to be more inclusive of the entire aquaculture sector by bringing into the association farmers of other species is commendable. As well, promoting the culture of new species would generate new economic activities, which would also help the association thrive from having a broader resource base.

d. The Philippines. Municipal level “Binmaley Rural Improvement Club” of mostly women members farming, processing and marketing milkfish (*Chanos chanos*). Mr Angelito C. Gonzal, FAO national consultant and former researcher of the Aquaculture Department of the Southeast Asian Fisheries Development Center worked on the case study and presented the results.

The Binmaley Rural Improvement Club (BRIC) is a women's organization producing milkfish and lately processing and marketing their product. It was formed in 1989 with 15 women members. It was assisted in its formation by the local community council, municipal agriculture office and the Provincial Rural Improvement Club (PRIC). Its membership has since expanded to 120 members two of whom are men.

The socio-economic context of the Club is the popular and widespread aquaculture of milkfish, one of the two staple food fish of the population (tilapia is the other). The earliest fish culture operation in the country was growing milkfish fry naturally recruited in ponds into market-size juveniles. Total fish production in 2014 was 2.338 million tonnes of which milkfish was 390 200 tonnes. Some are raised in freshwater lakes; most are grown in brackishwater ponds and an increasing volume is from coastal cage culture. The brackishwater pond milkfish production was valued at PhP 35 606.8 million (1US\$=50 Pesos, May 2017).

Binmaley town in the northwestern province of Pangasinan is a predominantly fishing community and called the fishbowl of the province. Milkfish aquaculture has elevated the economic status of the town above most of the other municipalities of the province. Milkfish production has earned Binmaley the title “Bangus Queen” of the Philippines (bangus is Filipino for milkfish).

As to the Club's membership most of the members are wives of milkfish farmers and farm workers. The club operates a small farm with a total area of 0.5 hectares,

including the area on which the fish processing plant was built. They process their own harvest of 2 000 kg every four months and buy more from reliable farms and traders (called consignors in the Philippines) to fill up the capacity of the plant and meet an increasing demand. The projected capacity of the processing plant is 10-15 000 kg a month. This would require 10-15 hectares of brackishwater ponds. They use their own production plus purchased fish from accredited farms in Binmaley and the nearby town of Labrador. BRIC accredit supplier farms for quality, to ensure that the fish is not contaminated with antibiotic and pesticide and free from salmonella.

Three major national policies are relevant to the Club:

- The *Magna Carta* for Small Farmers (Republic Act 7607), which aims at realizing equitable distribution of benefits and opportunities through the empowerment of the small farmers.
- The *Magna Carta* for women (Republic Act No. 9780), which recognizes the economic, political, and socio-cultural realities affecting women's current condition and aims at women equity in all opportunities.
- The Rural Improvement Clubs of the Philippines (RIC), which is a nationwide non-government organization the core of which are rural or village (barangay)-based groups. Started in 1953 by the Bureau of Agricultural Extension its objectives are to (a) uplift the living condition of rural women; (b) make them acquire skills and gain self-confidence which are essential to self-reliance; and (c) enable them to acquire experience in simple livelihood operations.

The Club has close links to various government institutions (fishery, trade, science and technology, academia and the mass media organizations).

The strengths of the Club are a functional organizational structure and duly elected and competent officers; a clear and concise mission: “produce quality food products that pass national standards and meet consumer requirements for quality”; and a set of core values - Benevolence, Resilience, Integrity and Credibility they strive to adhere to. The external factors include the national policies - magna cartas - on small farmers and women; the support of the Local Government Unit (LGU); training, technical support and partnership with the fisheries bureau and the university, which fishery campus is located in the town; accreditation given and technical support from the provincial trade and industry office (DTI); access to national research institutions; and an accreditation for competency and certification on food processing from the Technical Education and Skills Development Authority (TESDA).

Its weaknesses stem from the various limitations of the association and the sector. These include a limited production capacity to meet (an increasing) demand; limited financial resources for expansion; the current lack of accreditations on different standards for export such as BFAD, HACCP and FDA; a limited capacity to participate in international agriculture and food products exhibitions; insufficient qualification to take part in the global food manufacturers and exporters association; and -as well – the inconsistent commitment of a few members.

The factors that are associated to its strength, empowerment and sustainability include a democratically elected and dedicated officers; the strong and sustained BRIC's partnership with the various government authorities that include BFAR on technology for production, the Department of Trade and Industry for the Shared Service Facility (SSF), the Department of Science and Technology for research and development, the Technical Education and Skills Development Authority (TESDA) for training and certification of competence, the Livelihood Assistance Programme of the Provincial Government; acquisition of various permits and registrations for various activities; a dedicated adherence to its Mission and Vision; and its ability to compete and play as a role model. It has garnered several awards for its role in rural development and food security.

It might also be pointed out that the Club's President has been a steadfast and devoted leader since its inception, remaining active and becoming an inspiration to all the members at the age of 77. The related and crucial issue however is developing and training her replacement.

The policy recommendations from the case study are: (i) a regional initiative to intensify empowerment of small-farmers organization, (ii) strong action from government to encourage regional and global food production initiatives, (iii) assistance to farmers to enable them to comply properly with aquaculture product certification and registrations, (iv) promoting global competitiveness of local processed fish producers of processed fish products, (v) promoting innovative and responsible food fish production, and (vi) a strong support for the empowerment of women in the fisheries and aquaculture sector.

The actionable recommendations are to build stronger linkages and collaborations with private sector; maintain good management practices with strong adherence to culture and traditions; and advocate R & D focused on innovative and indigenous fish farming and fish processing traditions in rural areas.

Finally, all these should have components that address the risks from climate change.

Comments from the Chair: It is an inspiring story of an association of women. It highlights these lessons: clear goals that potential members know well before joining, an extensive networking and links with a range of technical agencies that collectively provide comprehensive assistance, access to the national mass media for a good coverage and wide recognition of its activities and achievements. The association knows the value of publicity, which in turn contributes to its success.

e. Sri Lanka. District level "Puttalam Ornamental Fish and Aquatic Plants Rural Fisheries Association" as the case and success story, with complementary information from 22 other small ornamental fish farmers associations from seven districts and a special development zone. Dr D.E.M. Weerakon, FAO National consultant, former director general of the National Aquaculture Development Authority, and ADB consultant, carried out the case study and presented the results.

The ornamental fish industry in Sri Lanka dates back to the early 1930s. From the beginning it comprised small-scale importers, breeders and hobbyists. It has become a thriving export industry earning foreign exchange and providing employment and livelihood to many people.

A community of professionals is engaged in the vocation full time. It is private sector-driven industry with minimal state intervention, heretofore confined to policing the exports. Sources of fish (and plants) are the wild and aquaculture. From culture, there are breeders who are also exporters, others are independent breeders/farmers and the third group are the small out-growers. The latter are generally small-scale and the most vulnerable.

Herein lies the weakness of the group: they are dependent on agents/intermediaries for product marketing, have no access to market information, no bargaining power over prices with agents/intermediaries of exporters, no access to quality inputs (fish feed, chemicals, quality broodstock and other materials), and no access to lines of credit because they have no collateral.

Expansion is relatively costly to them and they have little access to information and technology.

They tend to purchase low quality inputs especially broodstock. Their competitiveness in the local market is weak (they are often compelled to sell their product even when price is unfavorable). And they usually have no production plans either long- or short-term.

The formation of the Small Ornamental Fish Farmers Association aimed at helping this group.

There are two types of associations operating in Sri Lanka in the ornamental fish sector: (i) Ornamental fish/invertebrates and aquatic plants Exporters' Association and (ii) Freshwater Ornamental fish and Aquatic plants Rural Fisheries Associations.

The case association and a success story are the Puttalam Ornamental Fish & Aquatic Plants Producers Rural Fisheries Association. It is a district-based organization.

In Puttalam district, the total area of cement tanks is 720,000 sq. ft. (about 67,000 m²) and for earth ponds 90 000 sq. ft. (about 8 400 m²). There are around 140 farmers in the district, which works out to an average of 50 00 sq. ft. (461 m²) of cement tanks and 600 sq. ft. (56 m²) of earth pond per farmer.

Its sources of strength - common to all the country's ornamental fish associations - are in its being properly constituted, with a charter based on the guidelines provided by the National Fisheries Federation (NFF); its members having an Aquaculture Management License to operate granted by the National Aquaculture Development Authority; having a democratically elected Board; and a set of agreed statements of Vision, Mission and Objectives. It has a regular membership fee paid by active members. It has complete transparency and accountability of its funds; the associations' accounts are audited by an external auditor.

Bank loans are available at subsidized interest rates from the Bank of Ceylon (BOC). However, access is limited due to heavy collateral requirement. The association can avail of a 50 percent subsidy from the Provincial Council for the purchase of farm equipment and accessories.

Empowerment factors are a mix of positive and negative. For instance, it maintains good relations with science and technology institutions such as NAQDA and the National Aquatic Resources Research and Development Authority (NARA). It has devised methods to generate a revolving fund (financial empowerment) and has developed official linkages with relevant government agencies mainly for capacity building.

Relationships with input providers and buyers, as an Association is weak; it is usually made on an individual and personal basis. There are organized activities to promote products of members (but this is confined to a few associations like the Puttalam Association), and no organized activity to facilitate borrowing from banks.

Sustainability indicators are the history of operation of associations, which on average is 4 to 7 years. There are no conflicts or disputes among members; they have medium- and long-term development plans. And membership fees are paid regularly but many associations have no sustainable revolving fund. The Puttalam association however has the capability of generating additional income through its own initiative. It has a strategy to attract and retain members and membership retention. And it has had opportunities to take part in local trade exhibitions organized by the associations, the Provincial Council and NAQDA.

Among the achievements of the Puttalam Association are its members having participated at 'Aquarama' Ornamental Fish & Accessories Exhibitions in 2009, 2011, 2013 and 2015; being the only association to collectively win 30 thirty international awards at the competitions held during the respective exhibitions; having produced three exporters, who had also attended 'Interzoo', Petfare Exhibition in Nuremberg, Germany; and having been selected as the best Ornamental Fisheries Association in Sri Lanka at the 'Min Visithuru' 2016 Trade Fair and Exhibition held in Colombo under the patronage of NAQDA.

The constraints to the empowerment of associations in Sri Lanka are those that relate to financial, socio-economic, educational, institutional and political issues:

- Access to finance (financial empowerment).
- Access to training both technical and administrative (educational empowerment).

- Lack of intra and inter collaborative efforts ('clustering') among members of associations (socio-economic empowerment).
- Lack of a dedicated State organization (to formulate planned, instead of ad hoc policy directives) and to service the small-scale ornamental fish farmers and out growers (institutional empowerment).
- Lack of firm government policies to address the various issues confronting the farming community and the associations, which represent them (political empowerment).

The recommendations generated for the case study a mix of very specific and contextual recommendations as well as generic. These are as follows:

Specific to Sri Lanka

- Amend the NAQDA Act to create a division to service the ornamental fisheries sector.
- Formulate a policy on the production of ornamental fish and water plants for the export trade.
- Extend the present loan schemes to other commercial banks, in addition to Bank of Ceylon
- Provincial Council's financial assistance schemes to be channeled through other commercial banks as well, in addition to BOC.
- Negotiate with the Treasury for zero taxation on imported fish feeds for ornamental fish,
- Integrate rural ornamental fish farmers associations into one association within a district.
- Negotiate with Lanka Salt Ltd. to increase production of Artemia.
- Prioritize the development of quality brood stock through a genetic selection programme.
- Conduct farmer training programmes through their associations in selective breeding.
- Conduct awareness programmes on the quality and variety of ornamental fish required by the export trade.
- Promote and assist small scale ornamental fish farmers to attend international trade fairs.

Addressed to Sri Lanka stakeholders but can generally apply to an association in another developing country:

- Fish farmers within a district to operate their farms on the 'cluster' concept.
- Integrated parent association in each district, to prepare a long-term development plan inclusive of an action plan for the entire district.
- Large-scale producers, exporters and other input suppliers and lending institutions to be invited to government meetings.
- Assist associations to train its members on business plan/project proposal development.
- Negotiate with commercial banks for soft loan schemes for small-scale fish farmers.
- Carry out research on low cost feed development.
- Negotiate with suppliers for bulk purchase of chemicals.
- Conduct awareness programs on international demand and market prices.

Comments from the Chair: The association has clear objectives and ordinance. A stable financial footing with members financially contributing and the association generating revenue in innovative ways. It appears that the key assistance from government are the provision of credit on easy terms, reduction or elimination of import tax on quality feed inputs, and assurance of quality broodstock through training in breeding. The

government could also facilitate the introduction of high value species or varieties, subject to biosecurity measures.

f. Viet Nam. Khan Hoa Provincial Fisheries Association whose membership includes aquaculture farmers and hatchery operators. Dr Thai Ngic Chien, Head of Fisheries Resources Management of Research Institute of Aquaculture (RIA) No. 3 based in Nha Trang of Khan Hoa Province worked on the case study. Her presented the results.

Khanh Hoa is a coastal Province in Central South of Vietnam with high potential for fisheries development. It is the top marine aquaculture producer in Vietnam. The fisheries associations in Khanh Hoa Province were established in 1990s. The case association is the provincial level fisheries association and the three district associations that are linked to it but independent.

The socio-economic context of the associations is one of a thriving aquaculture and hatchery industries with a diversity of species being cultured or developed for culture. In 2015, the total aquaculture output of the province was 16 798 tonnes, of which white-leg shrimp farming contributed 5 925 tonnes, marine finfish in cages 4 242 tonnes, mollusks 2 973 tonnes, and seaweed 1 268 tonnes.

The 461 hatcheries operating in the province produced 2,691 million fingerlings in 2015 mostly of white leg shrimp and black tiger shrimp. Other potential and high economic species being developed for culture are lobster, *Babylonia* snail, seaweed and a number of marine finfish species including cobia, grouper, sea bass, pompano and other finfishes.

The policy and institutional context of the associations comprise the Fisheries Law issued in 2003 with a revision in 2008 of the roles and responsibilities of farmer associations. The fisheries associations are managed by the provincial Department of Agriculture & Rural Development (DARD). They have forged cooperative relations with the scientific and technological institutions located in the province that include the Research Institute for Aquaculture No.3 (RIA3), Institute of Oceanography (IO), and Nha Trang University (NTU). They also have good relations with other related associations in fish products such as those of fish sauce producers, tuna fishers, and others. Farmers, middlemen, feed suppliers, local buyers and fish processing companies are welcomed by the associations as segments of the market chain.

The strength of the associations includes the participation of many groups of stakeholders: fish farmers, local scientists, researchers, fisheries managers; a large base of membership; institutionalized relations with the fisheries extension office, processing companies, feed suppliers, and other service providers; a strong regional and international cooperation forged with many leading fishery research institutions such as Research Institute for Aquaculture #3, Nha Trang University, Institute of Oceanography, the Southeast Asian Fisheries Development Center, and the Japan International Cooperation Agency (JICA); the various high value fish species farmed in Khanh Hoa Province and the support and guidance from Government which also includes a small fund from the Peoples Committee for their activities. They also receive technical support, policy guidance and information on new regulations and training in new technologies from Directorate of Fisheries.

The weakness stems from the lack of a sustainable financial resources; they are partly supported by the local People Committee for the activities, but other revenue sources are irregular. The facilities of Fishery Associations in Khanh Hoa are poor; they share offices and have very few equipment. There is also a lack of professional staff and most of the staff working for the fisheries associations are retired or concurrently working in a government agency. Associations, despite their large membership, have many inactive members. Operating practically as a “semi-government organization is

a drawback. And having officers that are working part-time or have retired results in work plans being implemented passively because the officers have divided attention or not in good health. Running the association with almost 2 000 members is a full-time and can be a taxing job.

The factors associated with the three attributes of the associations are:

On strength:

- Associations are established under a Government Decree.
- A large membership base even though not everyone is active, each association has hundreds of members and the provincial association had 1195 members in 2016.
- Associations have an elected Executive Board

On empowerment:

- All associations were established by the People's Committees. Most are located in Governmental offices and working closely with Government fisheries agencies (aquaculture departments or agriculture departments).
- Representatives are involved in relevant meetings, training courses and technical workshops.
- Good relations with some leading aquaculture research and development institutions:
- Forums are organized to connect stakeholders such as feed providers, fishers/farmers and processors.
- Open dialogues among government officers, scientists, aquaculture entrepreneurs are organized to agree on "best solutions" to issues of aquaculture development in Khanh Hoa Province.

On sustainability:

- Most of the associations were established many years ago. However, their activities are almost always awaiting support from Government.
- The long- and short-term plans are general, lacking in detail and not clear.
- The most serious issue is the funding for their activities. Funding is mostly from membership fee supplemented by a few projects. The funds are not enough to support their action plans.

The lessons generated from the case study are:

- That a sustainable association (which means it has existed for a long time) is not necessarily an effective association. Case in point: although some associations were established 19 years ago with a large membership, they have not operated actively and effectively for lack of financial sources, lack of professional staff and poor infrastructure. In addition, because the trade standards are in English, the limitation in language competency of officers, who are usually senior or retired officials, is now a constraint.
- Because of their very few activities, the linkages among stakeholders in the whole market chain are weak.

The recommendations are mostly specific to the Vietnamese context, and include:

Policy

- The roles and responsibilities of Associations in the revised Fisheries Law need to be updated to meet the requirements of international product standards.
- Fisheries associations need a very clear mechanism for operating in the fisheries sector. The provisions of Decree No. 45/2010/ND-CP need to be clarified for each economic sector, including the fisheries sector.

- A financial mechanism should be developed for all associations to have a regular and sufficient funds for operation.
- Policies need to create incentives (such as credit, tax exemptions and market incentives) to encourage investments, improve members viability and contribute to a more effective association.
- Associations may need to be established around specific species such as lobster, seaweed, Babylonia snail or shrimp. These product-based associations would be able to focus on the technical and economic challenges and opportunities of the specific commodity.

Action-oriented

- Building human capacity: improve membership capabilities in terms of quality.
- Finding sustainable financial sources: Developing alternative revenue sources to increase budget for FAs may include demonstrations and out scaling of a model farm that has adopted better practices and innovations.
- Upgrading the facilities to improve working environment and personnel performance.
- Building short-term and long-term plans to attract participation of members: The level of members' participation in common activities is low. There are two reasons: association's activities are not attractive or challenging to members; the activities are invariably not relevant or very simple they are not of much help to farmers.
- Providing information on aquaculture and establishing communication links between officers and members Use various communications media and create information channels to provide news, explain new regulations, promote the adoption of new technologies, and increase awareness and understanding of trade and marketing standards and other requirements.

Comments from the Chair: One significant lesson from the case is that the long existence of an association does not necessarily make it an effective agent of development. A practical recommendation regarding the English language proficiency of officers is to translate the international trade standards and requirements into Vietnamese.

(g) Synthesis of the Case Studies. Mr Pedro B. Bueno, International Resource Person and Dr Mohammad R. Hasan, Aquaculture Officer, FAO, Rome presented the synthesis.

The cases provide qualitative descriptions of each attribute -strength, empowerment and sustainability. The three are interlinked and in most cases overlap. The indicators are qualitative but provide a holistic perspective of the attributes. The common characteristics of the cases that endow them **strength** are: a democratically elected board, democratic and transparent procedures, a dedicated leadership committed to pursuing the associations' objectives and the goal of the industry, an equally dedicated and active membership, a well-articulated mission statement and clear goals that are shared by all members, and clear government policies and regulations. An outstanding feature of one of the cases (the National Trout Farmers Association of Kyrgyz Republic) is that the two key officers -the chairman who is elected and the treasurer - serve without remuneration. The associations draw strength from being recognized by and represented in government policy making and from their interactions with the science and technology sector, government and private industry service providers, and the mass media. Capacity-building programmes from government and the R and D sector as well as from NGOs are crucial to the development of the knowledge and skills of

members and hence of the association. A crucial capacity is the professionalization of the association -its leaders and members and its procedures.

Assuring that an association both works and counts is a vital issue in the management and development of aquaculture. The Sri Lankan case report offers an interesting perspective for assessing -and enabling - the three attributes: that **empowerment** is the key attribute so that an empowered association invariably becomes strong and sustainable. The suggested five modes of empowerment are Financial, Institutional, Educational, Socio-economic and Political. The Bangladesh case study describes another mode of empowerment, which is to form a national association. Before 2015, Bangladesh had no national association of fish farmers and fish hatchery owners. District or sub-district level association have been formed and mostly remained inactive, with a few exceptions. But their contribution to the industry development has been mostly confined to the local economies; their national impact had been insignificant. A national association would fill this gap. The Philippine case, a rural improvement club of mostly women farmers, highlights the importance of being recognized for excellence or remarkable achievement. It has been a role model association in their community and for other organized groups in the region receiving several awards of recognition for their exemplary achievements. In the Vietnam case, the empowerment is endowed by its having been established by the People's Committee and working closely with government fisheries agencies and having institutional links with the R and D institutions in the province.

Efficiency and stability (= sustainability) are essential to achieving organizational purposes. If these conditions are not met, it can be difficult to plan and implement effective actions. The cases confirm the two requisites of stability: adequate financial resources and continuing commitment of members. On the other hand, an association can exist for a long time but being long-lived might be its only achievement, as the Khan Hoa provincial association illustrates.

Lessons and recommendations

The cases largely confirm the many benefits and advantages of being associated that numerous reviews of farmers' organizations -by FAO, NACA and the Federation of European Aquaculture Producers or FEAP - have found. The important ones are:

- Effective representation in government policy making and programme planning; a platform for drawing government's attention to the potentials as well as concerns of a commodity industry.
- Platform for discussion of industry issues between farmers and government, science and technology sector, and industry service providers.
- For self-regulation: checks on members' compliance with legislation and adherence to standards.
- Leverage for equitable transaction with input suppliers and product buyers; facilitates organized marketing and bulk purchase.
- Enables affordable participation of small farmers in local and export markets;
- Enables access of small farmers to the wider value chain, where the benefits of value addition and effective marketing can lead to better profitability.
- Facilitates the development of viable and robust economic production models to ensure financial stability of the small farmers.
- Facilitates capacity building programmes for members.
- Increases efficiency and reduces cost to government and service providers of providing extension, financial and other services to farmers
- Leverage for attracting technical assistance, financial assistance as well as subsidies from assistance organizations and government
- Facilitates adoption and sharing of technology, exchange of experiences and lessons among members and with other associations

- Pools intellectual and otherwise limited material resources of individual members into an effective and more massive resource for everyone's benefit.

The cases suggest these pitfalls:

- In an association with large- and small-scale farmer members, the larger and usually more powerful members tend to dominate and advance their own interests. This makes it important to have homogeneity in the membership.
- Government interference in the management of the association, in the choice of its leader or board members
- Government's tendency to co-opt the association for political ends
- Tendency of the association to be over-dependent on government subsidy for operations.
- Recruiting too many members for the sake of numbers and potential revenue from membership fee without screening for diligence and commitment and ignoring homogeneity.
- Factionalism within the association
- Waning of interest of members from lack of relevant and challenging objectives and activities
- Designation of part-time managers or members of the board who have concurrent jobs in other agencies. They are unable to devote sufficient time and attention to the association. The same would be true of retired persons as managers; they might not have the energy and vigor to perform their leadership or managerial role. Managing an association is a full-time active work.

Recommendations. The case reports propose policies and actions that are strategic and generic and those that are specific to the context of the case associations, in other words to the country. The recommendations that stand out for their high relevance to the three attributes of strength, empowerment and sustainability are (i) professionalization of the association, (ii) improvement of the technical capacity of members, (iii) development of a cluster mode of cooperation among members in their farming and operating as a business enterprise.

Professionalization of the association are targeted at these specific aspects:

- Training of leaders, board members, and all members in leadership and management skills
- Improvement of officers and members' ability for strategic planning, organizational development, and financial management
- Development of a strategic communications and information system for internal communications among members and stakeholders' relations
- Development of an information system for collection, processing and dissemination of industry/sector data (production statistics and trends, status of production and marketing resources)
- Establishment of a well-equipped office.

Constant improvement of management and technical expertise of members is needed especially on awareness and application of innovations in products and processes, risk management, and farm enterprise planning and management.

Cluster mode of operation of members is recommended in order to take advantage of their various expertise and resources to build competitive advantage, improve production efficiencies, reduce costs, and facilitate adoption of better management practices by operating as a group. The cluster should operate as a business entity.

Other recommendations include:

- A regional initiative to facilitate the empowerment of small farmers organizations
- Government action to support small holders to acquire membership in regional and global food production initiatives

- Strong support for the empowerment of women in fisheries and aquaculture
- Power of networking with various stakeholders -local, national, international
- Media interaction and exposure – to inform the public of achievements
- Leadership succession -develop future leaders by, among other ways, training, mentoring
- Clear, relevant policies and regulations -a favorable enabling policy environment.
- Associations set standards of behavior and adhere to them to earn trust of stakeholders and the social license to operate from the community; social license is just as important as a legal license.

Discussion Session

This segment of the workshop consists of statements from the representatives of various stakeholders on their experiences and activities relevant to organized farmer groups. Some of the discussants are small farmers themselves and belong to a cluster. The session was introduced by the Chairman of BSSF Syed Mahmudul Huq. The statements:

a. Aquaculture farmers

1) **Champa Devi, Dumuria, member of a farmer cluster.** We learned many new (shrimp) farming techniques through the STDF project such as nursery pond management and acclimatizing the post-larvae before releasing them into the grow-out ponds, pond preparation practices like liming, bleaching, screening the water, and better ways to feed the post-larvae during nursing stage. After 30-35 days nursing, we stocked the PLs in the gher. We check the health of the stock at least once in a month. Twenty-five of us organized into a group, a cluster, with some technical and organizational difficulty but were provided guidance by the Upazilla technical officer and other experts from different agencies. (I think others will likewise form clusters having seen our modest success). To supplement the income from shrimp farming, we also farm vegetables. We apply the integrated pest management or IPM approach to avoid using pesticide. We constantly improve our abilities through training. We became empowered and now are able to play a significant role in family decisions. Our income has also increased.

2) **Gita Chowdhury, leader of a cluster.** Production of shrimp and vegetables increased but marketing remains a problem. We are not getting what we think is the real price of our products. Having said that, our production cost has decreased. But we appeal for assistance in obtaining a fair price for our products. I will affirm that we are suffering from the hands of agents or intermediaries. A market-oriented project would be of help.

3) **Md. Wali Ullah, shrimp farmer from Satkhira.** I have been culturing shrimp since 2012. In 2014, I received specific pathogen free (SPF) PLs through the STDF project. The SPF larvae had high growth and low mortality. This really helped me. I now get a higher yield than before despite a lower stocking density; it is 3-4 times higher. I would like to request an increase in the supply of SPF. We also have problems with the supply of saline water to our ponds/ghers. We request the fishery department's assistance; dredging the incoming water channels would help. And we need more training on modern farming technology.

4) **Kazi Afsar, shrimp farmer from Satkhira.** I am a small shrimp farmer. In the past, my production has been very low, but it has increased; I achieved yield of 700 kg per acre after training under the STDF project, stocking SPF PL and feeding the shrimp

properly. My achievement was broadcast on television and I received a National Award from the Department of Fisheries during the Fish Week. We have a problem in the form of smuggled PLs from India which are suspected to be virus infected. Several farmers have been stocking these smuggled PLs. Some didn't get the yield they expected, and many lost their entire crop.

b. Providers of inputs, services, and technical and management advice

1) Mr Main Uddin Ahmed, Managing Director, MKA SPF Hatchery Limited. He described the background of the production of SPF PL for the Cluster shrimp farmers of Bangladesh. In 2015, he was able to produce SPF PLs for the first time. The technology was further improved in 2016. He noticed that growth of SPF PLs was better in semi-intensive than in intensive farms. They lowered the price of SPF PLs for the small-scale farmers; they in fact subsidized 40 percent of the price. He was grateful to BSFF and DoF for their technical and policy support.

2) Mr Nahin Ferdous, Acting Manager, Sectors Portfolio Division, Katalyst. We are familiar with the practices of shrimp farmers in different countries and saw first-hand the practices of Bangladeshi farmers from field experience. The clusters developed by BSFF and partners with the assistance of Katalyst are working well, the proof being the increasing productivity of farmers. A forward link from the clusters to collection centers, wholesalers and processing plants has been created. This good quality shrimp from the clusters will go to domestic and overseas markets. Installing the e-traceability mechanism will help farmers access markets and obtain a fair price even as traders and consumers are assured of a quality product. The ability of tracing a batch of harvest to a farm makes farmers more responsible; they would not be using banned chemicals and pesticides, for instance.

3) Dr Craig Meisner, Aquaculture Value Chain Specialist, NSF. He highlighted the importance of a close interaction, based on trust, between the farmers and service providers and the usefulness of incentives. The lack of a visible incentive i.e. one that farmers clearly see and benefit from, weakens the association. BSFF's intervention to form clusters of farmers in the Southwest is a commendable step. He stressed the critical importance of product quality. It matters in Bangladesh. Proof is that Walton -the electronic goods producer -not only have 57 outlets in Bangladesh but also exports its products, which are known for their quality, to 27 countries.

4) Mr Akanda Md. Rafiqul Islam, General Manager, Palli Karma Sabayak Foundation (PKSF). We have recently started working with the aquaculture sector. Our engagement has yielded two developments: first, a crab hatchery has been established by PKSF in Satkhira and we are trying to extend the technique to other parts of the country; second, we have designed and promoted a resource management scheme for the only natural carp spawning ground, Rive Halda, the result of which is that spawn production has considerably increased this year. PKSF provided financial assistance to the crab hatchery project that enabled the successful transfer of hatchery technology of mangrove crab from Vietnam to Bangladesh. The result of new technology such as this can be better and more quickly adopted by small farmers -who invariably have limited access to capital -with an appropriate credit facility. PKSF designs loan products for farmers of various scale of operation and extend to them financial advice. There are 300 Partner Organizations of PKSF that extend credit to small enterprises. It will set aside funds for lending to the fisheries sector.

Note: FAO and PKSF have recently completed a study on the credit facilities available to small aquaculture farmers, hatchery operators and feed producers. It was conducted by the Research

Team of PKSF. Its objective was to develop model business plans for small scale fish farmers, shrimp farmers, hatchery operators and feed manufacturers. To design the business plans, the study assessed the constraints and credit needs of these four groups of target clients, describe the loan application process, loan ceilings and loan products available to them, and assess the feasibility of providing them credit.

5) Dr Imtiaz Ahmed, former World Bank Officer and FAO Consultant. I have four comments: What is the policy environment for the small-scale fisheries associations. The fisheries law in Vietnam for instance has been revised. In this regard does it have any specific reference for small scale fisheries associations. Second, what is the definition of a “small scale farmer”? Third is the sustainability issue: cluster farms in Bangladesh, formed and operated under a project, have been running for one to two years. The clusters should be sustained after the project period and the pilot scaled up. Fourth is the outcome of this workshop: I suggest that the result of the project be used to produce a handbook, a generic practical guideline, on organizing and then strengthening, empowering and sustaining a farmers’ organization. Further, I suggest that the organizers, BSFF and FAO, report the results of the workshop to the Minister of Fisheries and Livestock of Bangladesh and recommend specific measures (policy, regulations and programmes) that Government should implement to strengthen, empower and sustain farmer organizations in the country.

6) Mr Humayun, Director, Bangladesh Frozen Foods Exporters Association BFFEA. More than USD600 million was earned from shrimp exports in 2016. We expect to increase this to USD1.5 billion in the near future. The country has 80 processing plants but only 20 percent of the plants’ capacity is fulfilled at the moment. This presents a large potential for shrimp farmers. Among the constraints to higher production are man-made and natural factors. I believe that a national shrimp farmers association would reduce irresponsible practices and improve productivity. Bangladesh has become a major aquaculture producer with finfish comprising the bulk of the output. If we solve the problems of the shrimp sector, we could become a major shrimp producer as well. In this regard, I request BSFF to consider organizing a national association of shrimp farmers.

7) Mr Md. Rafiqul Islam, former Director General, Department of Fisheries (DoF). I would like to focus my comments on the sustainability of associations. Under the Fourth Fisheries Project of DoF, there were many informal associations that were formed. Unfortunately almost all of them stopped operating soon after the project ended. Therefore, we need to think about the sustainability of the small-scale fisheries associations. We could consider an endowment fund backed by better guidance and supervision.

8) Dr Md. Sainar Alam, DFO (Reserve), DoF. How to sustain the fisheries association is a primary issue. Many associations were formed but were unable to remain viable and operational. In contrast, Milk Vita in our country and Amul in India are performing well and have existed for a long time. Ninety percent of our farmers are small holders. Small-scale farmer organizations would have a number of strengths but also many weaknesses as well as threats. How we -government and other stakeholders - can partner with them to enhance their strengths and mitigate their weaknesses is a challenge. We need to think seriously of how we can help improve the productivity and welfare of small holder farmers. Facilitating their being organized is one but sustaining them is a tougher challenge.

9) Mr Goljar Hossain, Deputy Director (Aquaculture), DoF I thank the country case study researchers. I also thank the organizers. I also want to know the definition of small

holder farmers. The synthesis pointed out the potential negative consequence of mixing large scale and small holder farmers. While farmer organizations can indeed play a major role in the development of the sector, we need to think about the structure of the FOs in Bangladesh. My suggestion is -at the Upazilla level, all producers should be brought under an association. At the district and divisional levels, separate associations should be formed. The newly formed Bangladesh Fish Hatchery and Culture Association should be in fact two association, one of fish farmers, the other of hatchery owners.

10) Mr Manievel “Emmanuel” Sene, Senior Aquaculture Specialist (Global-Practice-GFA12), World Bank. The Bank is launching a new project to address the challenges in the fishery sector, provide investments in a smart way to promote development, and ensure food and nutrition security, and further strengthen the institutional capacity of the Department of Fisheries. First phase will be for 5 years. The Bank looks forward to receiving the findings of this workshop to help inform the project preparation and complement the studies being conducted to formulate the project.

Summary of the technical and discussion sessions by the Chair

Mr Liaquat Ali Choudhury, Policy Adviser of BSFF reiterated the increasingly important role of aquaculture -in the case countries and generally in almost all developing countries – in rural development and livelihood and food security. To the successful pursuit of these roles, he stressed the major contribution of the small farmers and the many small- and medium-scale enterprises producing the two essential inputs, seed and feed.

The case studies assessed and presented the ground realities of small farmers and of small farmer organizations. They provide yet more empirical evidence to the numerous constraints and handicaps faced by the small farmers described in literature. This workshop re-affirms the advantages and opportunities that their being organized can bring. The question comes down to the core issue: How to -as the discussions advocate – organize them with economy, efficiency and speed and then -as the project aspires – enable their organizations to be strong, empowered and sustainable.

On top of all enablers is the policy environment. Policies and regulations need to be inclusive and, perhaps in countries where small farmers predominate, re-evaluated and amended to provide the small farmers and the small farmer organizations a head start. Rules and regulations should be simplified and, particularly on registration of associations, streamlined, not cumbersome, and fast. There will be some differences in policy support at the local, provincial or divisional or state, and the national levels. In this connection, as the cases point out, the policy advocacy of associations, through partnership and cooperation with government, can be done at the different levels as well. The local associations work with the local government and a national or apex organization with the national government. It is necessary to have an apex organization to represent the interests of the entire aquaculture sector, but caution should be exercised so that these national associations do not proliferate and compete for attention and resources. Should there be more than one, a mechanism for cooperation should be worked out among the associations. This applies as well to local associations, which should be networked. Networking among associations and between associations and other stakeholders -state agencies, non-government organizations, private industry sector, science and technology, the mass media, and regional and international assistance organizations -goes a long way to imparting strength and empowerment. The Philippine case study shows, in particular, the many positive multiplier effects of networking and effective relations with the mass media for a small village-based of women’s association.

Sustaining the associations has been a challenge in many countries, Bangladesh included. The effort goes both ways: government should endeavor to provide the

necessary assistance and incentives for associations to remain active. And sustain their interest in and guidance to the associations. On the other hand, associations should endeavor to make themselves viable with an active membership and sufficient resources. Membership fees are a basic source of funding but, as the Sri Lanka case shows, an association should try to earn revenue from other worthwhile activities and establish a revolving fund. The idea of a revolving fund is worth applying. A cautionary note related to sustainability is avoiding the pitfall of having few large, wealthy and usually powerful members dominate the organization to advance their own agenda and interests. Or a heterogeneous membership with diverse interests that could be extremely difficult to reconcile in a strategic plan. The weaker or passive members soon lose interest and drop out setting the stage for the unraveling of the organization.

An active membership is one that takes pride in being part of the association, finds the association's action plans challenging and beneficial, and is inspired by its values and mission. These intangible factors are a function of a tangible constitution and by-laws, an agreed statement of mission and goals, a code of conduct, and good management. In large measure, these are the responsibility of the organization's leadership. Which brings to the fore a crucial asset: professionalization. Capacity building programmes for associations should give this attribute high priority. Professionally run associations adopt democratic procedures in choosing their board, making decisions, managing funds and other resources, and formulating strategies and action plans.

There are global influences for which small farmers and their associations need plenty of assistance so that they understand the dynamics of these influences and learn the skills to deal with them. Trade embodies these influences, to which producers must comply with a host of requirements from product quality to food safety and social and environmental responsibility. The e-traceability pilot project that has been initiated for informal organizations, the farmer clusters, is a promising initiative to provide small farmers the capability to comply with the required standards. In so doing they become a more productive and responsible producers and gain a greater power for transaction. A good empirical evidence of this has just been shared with us by the women and men farmers who have generously given their time and shared their ideas in this workshop.

The session chair urged FAO and Governments to take up the recommendations from this workshop and transforming them into doable actions.

Closing Session

a. Mr Showkat Ali Waresi, former Secretary, Ministry of Commerce. He has been involved in the BSFF and now with the British Council. Under a project, he is working on policy reform on production and trade of shrimp and other aquaculture products. He commended FAO and BSFF for organizing the study and the workshop and congratulated the case study writers for producing a very instructive set of cases. He urged DoF to consider taking up the recommendations.

b. Dr Mohammad R. Hasan, Aquaculture Officer, FAO, Rome. We have conducted case studies on different types of associations in five countries. The diversity provides a rich vein of issues, examples and lessons and thus evidence-based recommendations. We tried to identify and analyze the strengths, weaknesses and opportunities of the case associations. We described ways and means to strengthen the associations. We are encouraged to hear positive comments and recommendations from the participants. I believe we have achieved the expectations from the case study and this workshop. FAO and for Bangladesh, the DoF, should take up the recommendation. We will report the Workshop results and synthesize the case studies. FAO may produce the guideline from the synthesis. World Bank, FAO, DoF and other stakeholders all should work and try to implement the findings of the study. Finally, we thank BSFF for organizing the workshop.

c. Syed Mahmudul Huq, BSFF Chairman explained why the Foundation had agreed to be partner in the study and specifically to organize the workshop. Briefly, it is in line with the Foundation's objectives and present initiatives to organize or assist farmer organizations, both informal (such as clusters) and formal. He introduced the closing speaker, Syed Arif Azad, Director General of DoF by describing him as a champion of public-private partnerships. He also thanked him for the department's assistance in the field visit to the South by the overseas delegates

d. Syed Arif Azad, Director General, Department of Fisheries. I thank FAO and BSFF for this privilege of addressing the workshop on its closing session. And I commend them for organizing this type of workshop, which to my knowledge is the first in Bangladesh and probably the region. A programme to address the concerns and needs of small-scale farmer organizations is timely and as I have constantly stressed, should now take priority in government policy and development agenda.

Their important role can be illustrated by our experiences in Bangladesh. In 1992, the first fish hatchery association was formed by Kapil Prasad Chouhan, Then Aftabuzzaman formed the Golda association. And now the Shrimp Hatchery Association of Bangladesh is effectively operating. It is, as it happens, chaired by a member of the parliament. We also have the FOAB. They have in numerous even if sporadic ways contributed to the progress of the aquaculture sector. We need associations to make the farmers voices heard by particularly government. IF they are not organized, who will bring their concerns at the policy level? In the context of Bangladesh, there are several ministries and departments involved in fisheries sector management and development. The rather large number makes things difficult for small farmers to understand let alone comply with the many mandatory requirements, on top of which are the voluntary but necessary certification standards. In India and Thailand, by comparison, the line departments facilitate processes to help small farmers, particularly in licensing and registration. In Bangladesh, the Department of Fisheries should be given the responsibility to register farmers associations. The department can provide a single-stop service, which will considerably facilitate registration and the subsequent monitoring and guidance.

As to your recommendations to strengthen, empower and sustain farmers organizations, the Department will endeavor to incorporate them in our policy and programmes. I would like to thank all our overseas delegates for sharing their knowledge and expertise. I thank all of you for your contribution to the workshop.

RECOMMENDATIONS

The workshop recommended that FAO and BSFF publish as soon as possible the Case Study Reports and the Synthesis as a separate volume. It was also suggested to develop a handbook as a short practical guide for organizing, strengthening, empowering and sustaining farmers' associations. The workshop endorsed the plan of FAO to incorporate the relevant results of the project in its Better Management Practice guidelines addressed to governments.

ANNEXES

ANNEX 1

Workshop agenda and timetable

Regional Workshop on Strengthening, Empowering and Sustaining Small-Scale Fish Farmers Association in Asia

Bangladesh Shrimp and Fish Foundation (BSFF)
and
Food and Agriculture Organization of the United Nations

Date 21 May 2017

Venue: Amari Hotel, Dhaka, Bangladesh

| Time (hrs.) | Activity | Remarks |
|--|--|--|
| 08:30 – 09:00 | Arrival and registration of participants | |
| Opening Session | | Chaired by Mr Sheikh Mustafizur Rahman, Additional Director General, Department of Fisheries (DoF), Dhaka, Bangladesh |
| 09:00 – 09:10 | Guests and participants take their seat followed by Recitation from the Holy Quran | |
| 09:10 – 09:15 | Welcome address and background of the workshop by BSFF | Mr Syed Mahmudul Huq, Chairman, Bangladesh Shrimp & Fish Foundation (BSFF), Dhaka, Bangladesh |
| 09:15 – 09:30 | Objective and purpose of the workshop and overall achievement and importance of this regional initiative | Dr Mohammad R. Hasan, Aquaculture Officer, Aquaculture Branch (FIAA), FAO HQ, Rome, Italy |
| 09:30 – 09:35 | Remarks by FAO Bangladesh | Ms Begum Nurun Naher, National Operations Officer |
| 09:30 – 09:45 | Address by Chairperson | Mr Sheikh Mustafizur Rahman, Additional Director General, DoF, Dhaka, Bangladesh |
| Refreshment (15 minutes) | | |
| Technical Session I: Country Presentation | | Chaired by Mr Liaquat Ali Choudhury, Policy Adviser, BSFF, Dhaka, Bangladesh |
| 10:00 – 10:30 | Country Presentation: Bangladesh | 1. Dr Mostafa A.R. Hossain, Professor, Bangladesh Agricultural University, Mymensingh 2. Mr Hiranmoy Bhattacharjee, Senior Aquaculture Value Chain Specialist, BSFF |
| 10:30 – 10:50 | Country Presentation: Kyrgyz Republic | Mr Oleg Dosaev, Director, LLC Aqua Service, Bishkek, Kyrgyz Republic |
| 10:50 – 11:10 | Country Presentation: The Philippines | Mr Angelito Cenido Gonzal, FAO Consultant, Binangonan, the Philippines |
| 11:10 – 11:30 | Country Presentation: Sri Lanka | Dr D.E.M. Weerakoon, Maharagama, FAO Consultant, Colombo, Sri Lanka |
| 11:30 – 11:50 | Country Presentation: Viet Nam | Dr Thai Ngoc Chien, Head, Department of Aquatic Resource Management, Research Institute for Aquaculture No. 3, Nha Trang, Viet Nam |
| 11:50 – 13:00 | Discussion | All participants |
| 13:00 – 13:10 | Wrap-up and concluding remarks | Mr Liaquat Ali Choudhury, BSFF, Dhaka, Bangladesh |
| 13:10 – 14:30 | Prayer and lunch break | |

ANNEX 1 – Continued

| Time (hrs.) | Activity | Remarks |
|-----------------------------|---|--|
| Technical Session II | | Chaired by Dr Sultan Hafeez Rahman, Executive Director, BRAC Institute of Governance and Development, BRAC, Dhaka, Bangladesh |
| 14:30 – 15:15 | Presentation of regional synthesis: Strengthening, empowering and sustaining small-scale fish farmers association in Asia | Mr Pedro B. Bueno, International Resource Person, Bangkok, Thailand and Dr Mohammad R. Hasan, FAO, Rome, Italy |
| 15:15 – 15:45 | Questions and answers | All participants |
| 15:45 – 16:45 | Discussion | Moderators: Dr Mohammad R. Hasan, FAO, Rome, Dr Thomas Shipton, FAO International Consultant, Bishkek, Kyrgyz Republic and Mr Pedro Bueno, International Resource Person, Rome |
| 16:45 – 16:55 | Wrap-up and concluding remarks | Dr Sultan Hafeez Rahman, Executive Director, BRAC Institute of Governance and Development, BRAC, Dhaka, Bangladesh |
| 16:55 – 17:55 | Break for Prayers | |
| Concluding Session | | Chaired by Mr Syed Mahmudul Huq, Chairman Bangladesh Shrimp & Fish Foundation, Dhaka, Bangladesh |
| 17:15 – 17:20 | Summary Presentation on 1 st Technical Session | Mr Liaquat Ali Choudhury, Policy Adviser, BSFF, Dhaka, Bangladesh |
| 17:20 – 17:25 | Summary Presentation on 2 nd Technical Session | Dr Sultan Hafeez Rahman, Executive Director, BRAC Institute of Governance and Development, BRAC, Dhaka, Bangladesh |
| 17:25 – 17:30 | Remarks by | Mr Showkat Ali Waresi, Deputy Team Leader, British Council, Dhaka, Bangladesh |
| 17:30 – 17:40 | Remarks by | Dr Mohammad R. Hasan, Aquaculture Officer, FAO, Rome |
| 17:40 – 17:50 | Remarks by | Mr Syed Mahmudul Huq, Chairman, BSFF, Dhaka, Bangladesh |
| 17:50 – 18:00 | Address by Chief Guest | Mr Syed Arif Azad, Director General, Department of Fisheries, DoF, Dhaka, Bangladesh |
| 18:30 – 19:00 | Break for Prayers | |
| 19:00 – 20:30 | Dinner | |
| 21:00 | End of the Program | |

ANNEX 2

List of workshop participants

Regional Workshop on Strengthening, Empowering and Sustaining Small-Scale Fish Farmers Association in Asia

Bangladesh Shrimp and Fish Foundation (BSFF)
and
Food and Agriculture Organization of the United Nations

Date 21 May 2017

Venue: Amari Hotel, Dhaka, Bangladesh

| # | Name | Designation | Organization |
|----|-------------------------------|---|--|
| 01 | Dr Mohammad R. Hasan | Aquaculture Officer | FAO, Rome, Italy |
| 02 | Dr Thai Ngoc Chien | Head, Department of Aquatic Resource Management | RIA 1, Nha Trang, Viet Nam |
| 03 | Mr Angelito C. Gonzal | FAO Consultant | Binangonan, the Philippines |
| 04 | Dr D.E.M Weerakoon Maharagama | FAO Consultant | Colombo, Sri Lanka |
| 05 | Mr Oleg Dosaev | Director | Aqua Service LLC, Bishkek, Kyrgyz Republic |
| 06 | Dr Thomas Ashley Shipton | Consultant | FAO Representation, Bishkek |
| 07 | Mr Pedro Bueno | International Resource Person | Bangkok, Thailand |
| 08 | Dr Mostafa A.R. Hossain | Professor | Bangladesh Agricultural University |
| 09 | Dr Abu Hyat Md. Saiful Islam | Associate Professor | Bangladesh Agricultural University |
| 10 | Begum Nurun Naher | National Operations Officer | FAO Bangladesh |
| 11 | Mr Liaquat Ali Chowdhury | Policy Adviser | BSFF, Dhaka, Bangladesh |
| 12 | Mr Syed Mahmudul Huq | Chairman | BSFF |
| 13 | Mr Md. Rafiqul Islam | Executive Director | BSFF |
| 14 | Dr Imtiaz Ahmed | Adviser | BSFF |
| 15 | Mr A.K.M. Zafar Ullah Khan | Director | BSFF |
| 16 | Mr Md. Rafiqul Islam | Team Leader Aquaculture | BSFF |
| 17 | Mr Hiranmoy Bhattacharjee | Sr. Aquaculture Specialist | BSFF |
| 18 | Mr Zillul Hye Razi | Director | BSFF |
| 19 | Mr Md. Sayedur Rahman | Coordinator Executive | BSFF |
| 20 | Mr Shahabuddin Chowdhury | Manager Accounts | BSFF |
| 21 | Mr Md. Saiful Islam | Office Executive | BSFF |
| 22 | Mr Syed Arif Azad | Director General | Department of Fisheries (DoF), Dhaka, Bangladesh |
| 23 | Mr Sheikh Mustafizur Rahman | Additional Director General | Department of Fisheries |
| 24 | Mr Goljar Hossain | Deputy Director (Aquaculture) | Department of Fisheries |
| 25 | Quazi Shams Afroaz | Deputy Director (Shrimp) | Department of Fisheries |
| 26 | Mr Md. Sainar Alam | District Fisheries Officer | Department of Fisheries |
| 27 | Mr Tariqul Islam Chowdhury | Founder and CEO | Unifox Digital |
| 28 | Mayesha Mariam | Program Manager | Unifox Digital |
| 29 | Mr Nizam Uddin Ahmed | Director | MKA Hatchery |
| 30 | Mr Main Uddin Ahmed | Managing Director | MKA Hatchery Limited |
| 31 | Sarirah Syed | Key Accounts Manager | Unifox Digital Media |
| 32 | Champa Devnath | Farmer | STDF |
| 33 | Reety Chowdhury | Farmer | STDF |
| 34 | Mr Md. Obaidul Gani | Farmer | Satkhira, BSS |
| 35 | Mr Humayun Kabir | Director | BFFEA |
| 36 | Mr Manivel Emmanuel Sene | Senior Aquaculture Specialist | World Bank |
| 37 | Mr Md. Harun or-Rashid | FVAP | Bangladesh Commerce Bank |

ANNEX 2 – Continued

| # | Name | Designation | Organization |
|----------|-------------------------|--------------------------------|---|
| 38 | Mr Nahin Ferdous | Senior Business Consultant | Swiss contract -Katalyst |
| 39 | Mr Humayun Kabir | Senior Quality Control Officer | BFFEA |
| 40 | Mr Al Imran | Value Chain Project Manager | PKSF |
| 41 | Mr Razaul Karim Khan | Managing Director | Krishibid Fisheries Ltd. |
| 42 | Mr Kazi Afser Hossain | Farmer | MKA Hatchery |
| 43 | Mr Wali Ullah | Farmer | MKA Hatchery |
| 44 | Dr Craig Meinser | Value Chain Specialist | NSF IINFI |
| 45 | Mr Showkat Ali Waresi | Deputy Team Leader | British Council |
| 46 | Nahid Farzana | Project Manager | British Council, PROKASH |
| 47 | Mr Naseem Ahmed Alam | Deputy Chief of Faculty | WorldFish, Dhaka, Bangladesh |
| 48 | Dr Michael J. Phillips | Director | World Fish, Penang, Malaysia |
| 49 | Dr Mahfuz Ahmed | Adviser | Asian Development Bank |
| 50 | Dr Sultan Hafeez Rahman | Executive Director | BRAC Institute of Governance and Development, Dhaka |

ANNEX 3

List of participants of the special meeting on an e-traceability pilot project

“An initiative to introduce e-Traceability in the clusters”

Regional Workshop on Strengthening, Empowering and Sustaining
Small-Scale Fish Farmers Association in Asia

Bangladesh Shrimp and Fish Foundation (BSFF)
and
Food and Agriculture Organization of the United Nations

Date 21 May 2017

Venue: Amari Hotel, Dhaka, Bangladesh

| # | Name | Designation | Organization |
|----|-------------------------------|---|--|
| 01 | Dr D.E.M Weerakoon Maharagama | FAO Consultant | Colombo, Sri Lanka |
| 02 | Md. Rafiqul Islam | Former Director General | DoF |
| 03 | Mr Liaquat Ali Chowdhury | Policy Adviser | BSFF |
| 04 | Dr Thai Ngoc Chien | Head, Department of Aquatic Resource Management | RIA 1, Nha Trang, Viet Nam |
| 05 | Mr Angelito Cenido Gonzal | Consultant | FAO, Binangonan, The Philippines |
| 06 | Mr Md. Rafiqul Islam | Executive Director | BSFF |
| 07 | Mr Hiranmoy Bhattacharjee | Aquaculture Officer | BSFF |
| 08 | Mr Syed Mahmudul Huq | Chairman | BSFF |
| 09 | Dr Mohammad R. Hasan | Aquaculture Officer | FAO, Rome, Italy |
| 07 | Mr Pedro Bueno | International Resource Person | Bangkok, Thailand |
| 10 | Dr Thomas A. Shipton | Consultant | FAOR, Bishkek, Kyrgyzstan |
| 11 | Mr Oleg Dosaev | Director | Aqua Service LLC, Bishkek, Kyrgyz Republic |
| 12 | Dr Mostafa A.R. Hossain | Professor | Bangladesh Agricultural University |
| 13 | Mr Md. Sayedur Rahman | Coordinator Executive | BSFF |
| 14 | Mr Shahabuddin Chowdhury | Manager Accounts | BSFF |
| 15 | Mr Shourav Islam | CEO | Unifox Digital |
| 16 | Mr Md. Saiful Islam | Office Executive | BSFF |
| 17 | Mr Tariqul Islam Chowdhury | Founder & CEO | Unifox |

The three desired attributes of a farmers' association are strength, empowerment and sustainability. For this study, a strong organization has the capacity to efficiently and effectively achieve its organizational goal and objectives; empowered, negotiate, and work with other stakeholders on equal terms for advancing common aspirations and achieving common objectives and in so doing does not compromise its organizational values; and sustainable if it can function at an effective level and maintain organizational viability, it has sufficient resources to operate continuously and need not rely on subsidy to maintain organizational functions. The five case studies of farmers associations (in Bangladesh, Kyrgyz Republic, the Philippines, Sri Lanka, and Viet Nam), reveal these common characteristics: strong associations have a democratically elected board, adhere to democratic and transparent procedures, a dedicated leadership committed to pursuing the association's objectives and the goal of the industry, an equally dedicated and active membership, a well-articulated mission statement, and a set of values and clear goals that are shared by members. They harness their strength and resources to make an impact on the industry. They are recognized for their contributions to the economic, social and environmental objectives of the country. Sustainable associations are stable and efficient. They have adequate financial resources, manage their resources effectively and the members maintain a continuing commitment to the goals of the association. Associations draw strength from being recognized and represented in government policy decisions and from their interactions with the science and technology sector, government and private industry service providers, and the mass media. The case studies confirm that the livelihoods of small-scale farmers and hatchery operators can be improved by their being associated. The association's ability to make a difference to members' livelihoods through stakeholder engagement enhances its prospects for sustainability. The cases highlight the importance of professionalizing an association – its leadership, members and procedures.

ISBN 978-92-5-132211-6 ISSN 2070-7010



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CA7741EN/1/02.20